JCN Journal of Clinical Nursing

Journal of Clinical Nursing

ORIGINAL ARTICLE

A mixed methods study of the work patterns of full-time nurse practitioners in nursing homes

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Aims and objectives. The aim of this study was to explore the integration of the nurse practitioner role in Canadian nursing homes to enable its full potential to be realised for resident and family care. The objective was to determine nurse practitioners' patterns of work activities.

Background. Nurse practitioners were introduced in Canadian nursing homes a decade ago on a pilot basis. In recent years, government and nursing home sector interest in the role has grown along with the need for data to inform planning efforts.

Design. The study used a sequential mixed methods design using a national survey followed by case studies.

Methods. A national survey of nurse practitioners included demographic items and the EverCare Nurse Practitioner Role and Activity Scale. Following the survey, case studies were conducted in four nursing homes. Data were collected using individual and focus group interviews, document reviews and field notes.

Results. Twenty-three of a target population of 26 nurse practitioners responded to the survey, two-thirds of whom provided services in nursing homes with one site and the remainder in nursing homes with as many as four sites. On average, nurse practitioners performed activities in communicator, clinician, care manager/coordinator and coach/educator subscales at least three to four times per week

What does this paper contribute to the wider global clinical community?

- To date, work pattern data exist for nurse practitioners in the EverCare nursing homes in the USA. This paper expands on that by providing information about the work patterns of nurse practitioners in nursing homes in Canada.
- The findings from this study demonstrate that nurse practitioners perform their role with a high degree of collaboration within the care team and that their role is autonomous.
- Our case studies identify that nurse practitioners provide leadership activities within nursing homes and that administrators may not be as aware of this aspect of their role.

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and activities in the collaborator subscale once a week. Of the 43 activities, nurse practitioners performed daily, most were in the clinician and communicator subscales. Case study interviews involved 150 participants. Findings complemented those of the survey and identified additional leadership activities.

Conclusion. Nurse practitioners undertake a range of primary health care and advanced practice activities which they adapt to meet the unique needs of nursing homes.

Relevance to clinical practice. Knowledge of work patterns enables nursing homes to implement the full range of nurse practitioner roles and activities to enhance resident and family care.

Key words: leadership, long-term care, nurse practitioner, nursing home, work patterns

Accepted for publication: 12 October 2014

Introduction

The care needs of older adults are an increasing concern internationally (U.S. Department of Health & Human Services & World Health Organization 2011). The chronic disease, dementia and functional impairments that often accompany longevity are expected to generate an unprecedented need for nursing home care. This comes at a time when the capacity of nursing homes to provide access to primary health care services is already stretched (Conference Board of Canada 2011). Such challenges to accessibility have led many countries to introduce nurse practitioners (NPs) (Delamaire & Lafortune 2010).

There are 23 countries that formally recognise the NP role (Pulcini *et al.* 2010). Although there are some commonalities in how the NP role is defined internationally, differences in practice, education and regulation remain (Duffield *et al.* 2009). Similar to Canada, the USA regulates NPs on a state by state basis, whereas in Australia and New Zealand, NP regulation is a national process (Gardner *et al.* 2012). In Canada, NPs were first implemented in the 1970s, however, uptake of the role has only occurred in the past 15 years with legislation and regulation in every jurisdiction (Kaasalainen *et al.* 2010). There are many commonalities in NPs' scope of practice; for example, all NPs diagnose common conditions, order laboratory and diagnostic tests, and prescribe medications. Jurisdictions vary in relation to the range of medications NPs may prescribe and their ability to diagnose independently (Donald *et al.* 2010).

Little is known about the roles and activities of NPs in nursing home settings in Canada. This knowledge is needed to identify the extent to which roles have been integrated so that needed adjustments can be made to optimise the services they provide to achieve better outcomes (Bryant-Lukosius & Dicenso 2004). Tracking how NPs spend their time is also important for policymakers and administrators charged with planning and funding health services (Gardner *et al.* 2010). The purpose of this paper was to address these gaps by describing the work activities of NPs who work full-time (i.e. more than 30 hours per week) in Canadian nursing homes.

Background

Nurse practitioner numbers and roles are increasing in many countries worldwide (Pulcini *et al.* 2010). The extent to which NPs have been deployed in nursing homes globally is unclear. In a global survey of NPs and key informants, less than half of countries reported that NPs practice in long-term care settings (Pulcini *et al.* 2010). An Australian survey found that between 2007–2009, NPs working in aged care/rehabilitation increased from 3·4–5·3% of the respondents (Middleton *et al.* 2011). Of the approximate 189,000 NPs in the USA, about 3% work in nursing home settings (American Association of Nurse Practitioners 2014).

In Canada, the province of Ontario was the first to introduce NPs in nursing homes (Stolee *et al.* 2006) with other provinces slowly following suit. While work patterns of NPs in primary health care settings have been studied in Australia (Gardner *et al.* 2010), the USA (Holcomb 2000) and Canada (DiCenso *et al.* 2003), less is known about the NP work patterns in nursing homes.

Bakerjian's (2008) review of primary studies identified that NPs in nursing homes have distinct roles including: primary care provider; educator of residents, families and staff; consultant for staff; and consultant to organisations. Rosenfeld *et al.* (2004) found that NPs in the USA respond to acute health concerns and provide preventive, palliative and wound care. Abdallah *et al.* (2005) developed and tested the EverCare Nurse Practitioner Role and Activity Scale (ENPRAS) to record the work patterns of NPs in EverCare nursing homes in the USA. Abdallah then used ENPRAS to study the work patterns of EverCare NPs ($n = 127$) in five states. She found that the frequency with which NPs performed the clinician and care manager/coordinator activities increased with the size of NPs' caseloads. Site differences accounted for a moderate amount of variance in the collaborator and coach/educator subscale activities (Abdallah 2005). Abdallah suggested the former could be related to setting-specific collaborative practice agreements with physicians and/or state-based legislative or regulatory requirements, and the latter to differences in staffing levels and numbers.

The work patterns of NPs in Canadian nursing homes have not been studied. There is a need for better data about the activities of NPs in these settings to establish a baseline and inform future investments in the role (Long Term Care Innovation Expert Panel 2012).

The study

Aim

The aim of this study was to explore the integration of the NP role in Canadian nursing home settings to enable the full potential of this role to be realised for resident and family care. The objective was to determine the roles and practice patterns of NPs in nursing homes. In this paper, we report on work patterns of NPs practising full-time in Canadian nursing homes. These data were collected as part of a national study that explored the integration of the NP role in nursing home settings (Donald *et al.* 2011).

Design

The study was a sequential two-phase mixed methods design. We conducted a cross-sectional national survey of NPs in nursing homes followed by four case studies in nursing homes with a single site or nursing homes with multiple sites. Survey data were collected from July 2009–September 2010 and case studies conducted from October–December 2010.

Quantitative sample, data collection and analysis

When we began the study, available data from the registration databases of nursing regulatory bodies indicated that of the 1026 licensed NPs in Canada in 2005, 35 were practising in geriatrics/long-term care (CIHI & CNA 2006). As the data did not distinguish those NPs who were practising in nursing homes from those in other geriatric settings, we identified the potential survey population by placing announcements about the study on NP electronic mailing lists and seeking information from governments, regulators and employers.

Using these methods, we identified 26 NPs who were working full-time in nursing homes. To maximise the response rate, questionnaires were mailed to participants using a modified Dillman approach with three reminders and a gift card for a national coffee shop (Edwards *et al.* 2002).

The questionnaire for the survey included demographic questions and the ENPRAS (Abdallah *et al.* 2005). The ENPRAS is a psychometrically tested scale developed to measure the frequency of work activities of NPs in Evercare nursing homes in the USA (Abdallah *et al.* 2005). With the author's permission, we modified the ENPRAS for the Canadian context. The modified instrument contained 108 items divided across six role domains in subscales as follows: 'collaborator' (seven items), 'clinician' (53 items), 'care manager/coordinator' (seven items), 'communicator' (24 items), 'coach/educator' (14 items) and 'counsellor' (three items) (Abdallah *et al.* 2005). Two NPs piloted the modified questionnaire for face validity and clarity.

Respondents were asked to indicate the frequency with which they performed each activity. Selection options included: never, once every three months, once a month, once a week, three to four times per week, once a day and more than once a day. Data from the ENPRAS questionnaire were coded using times per year for the weights as follows: never = 0, once every three months = 1, once a month = 12, once a week = 52, three to four times each week = $52 \times 3{\cdot}5 = 172$, once a day = 365 and more than once a day = $365 \times 2 = 730$. Using these weights, the responses for the items in each subscale were summed and the mean determined. Frequency was analysed and reported as the number of times that NPs perform each activity per year. ENPRAS role domain subscale scores were calculated for each NP using rank sums. Demographic data were analysed using descriptive statistics. Between group comparisons of NPs working in a single or in multiple homes were calculated using Mann–Whitney tests to determine variations in activities by NPs.

Qualitative sample, data collection and data analysis

Four cases were selected where NPs worked at least 30 hours per week in nursing homes with one or multiple sites. The administrators of nursing homes identified as potential cases were initially contacted by a decision-maker partner from our team. Our research coordinator followed up with the administrator and NP to determine their willingness to participate and to plan the logistics for the site visit. Each nursing home was given a package of information letters and consent forms for distribution to potential health care provider, family and resident participants. Potential study participants were given the option of contacting the research coordinator for further information about the study. During the site visits, research team members reviewed the study with participants and obtained consent.

The duration of site visits for each case was two days. Data collection methods included: audio-recorded and transcribed individual and focus group interviews; a brief questionnaire asking health care providers the reason(s) for which they consulted the NP; document analysis (e.g. position descriptions, proposals for the position); site visit observations and field notes. Semi-structured interview guides were developed for administrators, family members, multidisciplinary health professionals, NPs, managers, physicians, residents and unregulated care staff, and are available from the corresponding author. In brief, participants were asked about the activities of the NP and their experiences, positive and negative, with the NP. Data were collected by research team members (RMM, FD, AWG, ESG) with assistance from research assistants.

The brief questionnaire for health care providers was analysed using descriptive statistics. Interviews and documents were coded in NVIVO 9 (QSR International Pty Ltd 2010) and analysed using content analysis (Elo & Kyngäs 2008). Three team members (RMM, FD, AWG) developed an initial coding structure deductively using the core competency categories identified in Advanced Nursing Practice: A National Framework Revised (CNA 2008) and inductively using interview data from three transcripts. Following this, all team members independently analysed the same two transcripts then met by telephone to discuss and further revise the coding framework. Next researchers were divided into pairs with each pair assigned to one case. Both researchers in the pair analysed all of the transcripts in their assigned case then met by telephone to compare and agree on coding and to discuss emerging themes.

The team met in person for a two-day meeting to discuss themes emerging from the coded data. We systematically compared the coded transcripts by participant type (nurse practitioners, physicians, nursing staff, administrators, allied health professionals, residents and family members) within and across cases examining the data for commonalities and differences. In our discussion of emerging themes, we intentionally challenged ourselves to search for and consider alternative explanations (Lincoln & Guba 1985).

After the survey and case study data were analysed, we held another two-day face-to-face meeting of the whole research team. We compared the findings from the survey and the case studies and considered the extent to which findings were convergent, complementary or contradictory (Erzberger & Kelle 2003).

Ethical considerations

Ethics approval was obtained from Dalhousie, Ryerson and McMaster University and the Universities of British Columbia, Waterloo and Victoria. In addition, as required by various health authorities and organisations, ethics approval was obtained from four more universities, 15 health authorities and four nursing homes.

Validity and rigour

To increase the validity and rigour of the quantitative data, we used ENPRAS, a valid and reliable questionnaire (Abdallah *et al.* 2005). Member checking was used during interviews to clarify concepts and emerging ideas and 'interweaving' to check information and ideas from previous interviews with subsequent participants (Krefting 1991). Data from each case were analysed independently by two researchers prior to analysing across cases. Results of the quantitative and qualitative data were used when interpreting results to increase legitimation of the study (Onwuegbuzie & Johnson 2006).

Results

Survey findings

Of the 26 eligible NPs, 23 responded (88%). All were female and most were 35–54 years of age with several years of NP experience. The majority worked in a single-site, not-for-profit nursing home located in an urban or suburban area. Their complete demographic characteristics are presented in Table 1.

Table 1 Demographics of 23 full-time NPs

Characteristic	*n* (%)
Sex	
Female	23 (100·0)
Age	
25–34	1 (4·3)
35–44	8 (34·8)
45–54	8 (34·8)
55 and over	6 (26·1)
Education (highest level)	
Diploma	2 (8·7)
Baccalaureate	12 (52·2)
Masters	9 (39·1)
NP Education	
Undergraduate	17 (73·9)
Graduate	6 (26·1)
Specific geriatric education	
Coursework	13 (56·5)
Clinical in NP programme	13 (56·5)
Certification programme	9 (39·1)
Other	5 (21·7)
None	2 (8·7)
Years of experience: Mean (SD)	
Registered Nurse (RN)	24·2 (9·7)
RN in LTC before NP	4·3 (8·2)
NP any setting	6·5 (3·4)
NP in LTC	4·9 (3·3)
Current NP position	4·8 (3·3)
Number of nursing homes	
Single	14 (61·0)
Multiple	9 (39·0)
Geographic location	
Urban/suburban	17 (74·0)
Rural/remote	4 (17·0)
Both	2 (9·0)
Funding model	
Not-for-profit	12 (65·2)
For-profit	5 (21·7)
Both	3 (13·1)

Roles and work patterns

Overall, the survey results indicated that the majority of NPs performed all of the activities included in the ENPRAS scale. Of the 43 activities that NPs performed daily, 25 were in the clinician subscale, 11 in the communicator subscale, 5 in the coach/educator subscale, and 2 in the care manager/coordinator subscale (Table 2). Examination of ENPRAS role domain means found that on average NPs performed activities in communicator (357·2) and clinician (345·3) subscales almost daily with means just under 365, the weighted score indicating daily performance of an activity (Table 3). Care manager/coordinator (255·9) and coach/educator (249·3) subscales had means that were between the weighted scores for daily (365) and three to four times per week (172). Our interpretation of this was on average NPs performed these activities at least three to four times per week. The average frequency of performance of activities in the collaborator subscale was 109·3 which is between the weighted scores for three to four times per week (172) and once a week (52). Our interpretation was that NPs collaborated with physicians at least once per week. There were no statistical differences in the frequency of subscale activities performed by NPs providing services in single-site nursing homes compared to those providing services in multiple-site homes (Table 4).

Case study findings

The nursing homes participating in the case studies were located in western, central and eastern regions of Canada and were diverse with respect to geographical location (rural, urban, suburban), size (200–400 plus beds), and funding source (for-profit and not-for-profit). Three NPs provided services in single-site nursing homes; the fourth NP divided her time across three sites located up to 45 minutes driving distance apart. In total across the four cases, 150 participants were interviewed through either focus groups or individual interviews. Participants included NPs, physicians, regulated nursing and unregulated care staff, multidisciplinary health professionals, administrators, managers, residents and family members. To protect the confidentiality of the nursing homes and participants, we avoided detailed contextual and demographic descriptions.

The NPs worked mainly weekday daytime hours and although they did not do a regular on-call rotation, the NPs in two cases provided after-hours care for specific resident and family needs, such as end-of-life support and pronouncing and certifying death. In the brief questionnaires completed by health care providers about the reasons they contacted the NP, more than half indicated it was for episodic care of acute minor illness and injury, management of chronic and mental health concerns, and education or coaching. Five themes describing broad categories of NP activities were identified including direct clinical care, collaboration, consultation and referral, teaching and coaching, communication and leadership.

Direct clinical care

Consistent with the survey results, participants in all case studies reported that NPs spend most of their time performing direct clinical care activities. All participants across all four cases described the NPs' direct clinical care role with residents and families. Many participants indicated the NPs completed comprehensive admission assessments and

Table 2 ENPRAS activities 23 full-time NPs perform on a daily basis (i.e. at least 365 times/year)

Clinician subscale
Incorporate my nursing knowledge into my clinical decisions & orders
Collaborate with nursing staff
Assist nursing staff in implementing care of my residents
Approve & disapprove therapy orders & other treatments for my resident
Interpret diagnostic testing done on my resident
Assess resident whenever concerns brought to my attention by staff
Conduct physical assessment of my resident
Management of chronic & acute illnesses for my residents
Write medical orders including orders for laboratory tests, medications, therapy, consults, routine orders
Promote quality of life in care that I provide
Assess resident whenever concerns brought to my attention by staff
Conduct physical assessment of my resident
Management of chronic & acute illnesses for my residents
Write medical orders including orders for laboratory tests, medications, therapy, consults, routine orders
Promote quality of life in care that I provide
Assess resident whenever concerns brought to my attention by staff
Conduct physical assessment of my resident
Management of chronic & acute illnesses for my residents
Write medical orders including orders for laboratory tests, medications, therapy, consults, routine orders
Promote quality of life in care that I provide
Develop a treatment plan for management of chronic & acute illnesses for my resident
Diagnosis of chronic & acute illness for my residents
Maximise the functional ability of my resident
Develop a plan of care for my resident
Act as the person responsible for continuity of care of resident by providers
Conduct diagnostic workup on my resident
Aware of subtle changes in resident's condition which may be significant to health status
Collaborate with personal support worker
Stay on top of residents with fluctuating chronic conditions
Educate resident about diagnostic workup why doing it, if resident is able to comprehend information
Act as a leader of the care management team who provide care for my resident
Focus on disease management & health promotion when developing resident plan of care
Provide primary care management of each resident
Revise treatment plan on my resident as needed
Collaborate with resident to incorporate their wishes into plan of care. If resident unable, collaborate with family
Assist nursing staff in implementing care of my residents
Approve & disapprove therapy orders & other treatments for my resident
Interpret diagnostic testing done on my resident
Communicator subscale
Collaborate with licensed practical nurses/registered practical nurses
Build rapport with residents, families, & staff built on honesty, frequent communication, & response
Encourage families, residents, & staff to ask questions
Communicate resident plan of care using face-to-face contact with team members
Educate resident about treatment plan, plan of care, & why important to follow it
Keep everyone up to date (team members)
Keep everyone on same page (team members)
Keep everyone up to date (team members)
Educate resident about disease state & progression, if resident is able to comprehend information
Initiate communication with all interested parties (including resident and family) to share information & make decisions
Give access to cell phone or telephone number to all disciplines & physician
Care manager/Coordinator subscale
Provide cost efficient care to my resident
Function as a gateway to the care the resident receives
Educate nursing staff about treatment plan & plan of care
Educate nursing staff about diagnostic workup & why conducting it
Meet personal educational needs of nursing staff daily through informal education
Coach/Educator
Educate nursing staff about specific diseases of my resident
Support nursing staff who are dealing with resident with difficult behaviours

Table 3 ENPRAS subscales for 23 full-time NPs

Subscale	n	Mean	SD
Communicator	23	357·2	114·0
Clinician	23	349·3	136·7
Counsellor	23	255·9	237·6
Coach/Educator	23	249·3	143·3
Care manager/Coordinator	23	227·9	84·4
Collaborator	23	109·3	99·3

assessed, managed and followed up residents with a variety of chronic conditions, including dementia, as well as acute conditions, such as eye, throat, chest and urinary tract infections, congestive heart failure exacerbations, falls, shortness of breath and chest pain. Participants reported that NPs diagnose acute episodic illness, exacerbations of chronic illness and new conditions. They also order laboratory and diagnostic tests and medications and perform procedures, such as

Table 4 Comparison of activities of NPs in single and multiple-site nursing homes using Mann–Whitney test

Activity subscale	Rank sum for single home (n = 14)	Rank sum for multiple homes (n = 9)	p-Value
Communicator	168·0	108·0	0·99
Clinician	159·0	117·0	0·25
Counsellor	164·5	111·5	0·80
Coach/Educator	148·0	128·0	0·11
Care Manager/Coordinator	171·0	105·0	0·81
Collaborator	172·0	104·0	0·76

suturing, deep suctioning, ear syringing and wound debridement when needed. Other clinical activities included follow-up evaluations, admitting new residents, completing annual physician examinations, documenting, performing medication reviews and managing challenging behaviours of residents. The following quotes illustrate two aspects of NPs' clinical role with residents: prompt assessment and management of acute conditions and early identification and intervention for deteriorating chronic conditions.

If anybody's ill, she'll come and have a look at them and assess them with us, and we can make some decisions as far as what to do next for this particular resident, and if it's within NP's scope then she would order a chest X-ray or order antibiotics or whatever happens to be required in order to keep the resident in the home rather than having to go outside the home for treatment for any number of things that we could manage here. [Manager]

Chronic care was in the shape of regular rounds through the building. Regular rounds would just be those chronic issues, re-orders, INRs, those type of things. Friday rounds were more who needed to be seen before the weekend because they might have some respiratory symptoms or a little more confusion. [Nurse Practitioner]

Collaboration, consultation and referral

Participants in all cases discussed the importance of the NPs' role of communicator and collaborator with residents and families and with the health care team inside and outside the nursing home. Nursing and interprofessional team members described how the NP 'includes the whole team', so that each team member was 'doing [their] piece and all working towards the same goals.' The following example further illustrates this role component.

I find that NP is all team work. She doesn't make decisions and say this is the way it is going to be. She usually asks for your input and usually as a team we come up with the solution. [Registered Nurse]

Nursing and interprofessional participants indicated that the NP provided consultation regarding resident care issues and the NP also sought consultation from others when needed. Participants noted that NPs who were new graduates worked quite closely with physicians and that as the NPs became more experienced, the amount of time needed for collaboration was less and more situation-specific. As one family physician pointed out, 'now she contacts me only if it's something that she is not sure of or certain prescriptions that she can't write.' Some family physicians and NPs collaborated on an *ad hoc* basis and others had preset times when they collaborated either in person or by telephone. Collaboration between NPs and family physicians was bidirectional; for example, in one case, family physicians often initiated consultation with the NP regarding complex wound care issues.

Teaching and coaching

Participants in all four cases (nursing homes) identified the NPs' important role as coach and educator for families and residents, nursing home staff, and groups external to the nursing home. NPs' teaching and coaching occurs informally throughout the day and often with a focus on dementia, challenging behaviours, pain management, wound and end-of-life care. These topics were also taught using more formal methods such as group education sessions.

Staff described the NP as a 'teacher,' 'mentor,' and 'resource person'. They indicated the NP's teaching style was to start by demonstrating the new skill or service, then coach others, and eventually transfer the responsibility. Several participants described this process using various examples, the end result being improved staff confidence, broadened skill development and ultimately expanded capacity of the setting to admit residents with more complex care needs. As one manager said, 'We are able to take residents with higher care needs because she's here… and she can educate our staff'.

In terms of groups external to the nursing home, a few participants identified that NPs also provide education to community groups, such as 'the Alzheimer's group' and 'Palliative Care Group,' and sometimes to staff of other nursing homes. In the following quote, an NP describes her involvement with an Alzheimer's group.

It's an education/support group. Part of it is just bringing the community members together to speak to each other. But we also talk about new research or just education related to dementia. [Nurse Practitioner]

Communication

Across cases, participants commented on the NPs' communication role with families, residents and nursing staff. Families talked about the information NPs provided to them and the ease with which they were able to contact and communicate with the NPs identifying the NP as 'always available'. Families valued the information that NPs could give them regarding the NP as 'the one who I trust to know information and to be able to give me answers about any tests that my mom has had.' Others expanded on how important it was to them to know that the NP would contact them proactively with any concerns. This was particularly important for family members living some distance from the nursing home.

> Living two hours away, it was a big worry. You know, I can get back and forth as much as I could but I knew that I could count on that nurse practitioner to pick up the phone and let me know what was going on with my mother. And if there were issues where decisions had to be made, whether certain kinds of care was to be undertaken, she would call me no matter what time of day or night it was. And I always felt that that was a service that was so valuable to family members who weren't right here on the scene all the time.

Health care providers echoed the importance of the NP's communication with families commenting that 'she's well-liked by families and very approachable' and when speaking with families about difficult issues, 'she just has that warmth, that reassuring—she says the right things.' Many also talked about the communication the NP has with other health care providers, physicians and managers. One health care provider summed it up this way:

> I believe that our nurse practitioner is well integrated because she has good communication lines between the physician, the staff and the families. So she has good rapport with all. So that she can get information from various people and integrate it into the care of the resident. She's well-liked by families and very approachable. So a lot of families feel comfortable with her as well. And I know she's got a good rapport with everybody in the facility. [Health Care Provider]

Leadership

In three of the four cases (nursing homes), participants reported that NPs carried out leadership activities. Leadership activities included facilitating evidence-informed practice, participating on committees, and developing and implementing practice innovations. Examples of innovations were developing new protocols, forms and clinical tools, such as 'urinary tract assessment guidelines' and 'comprehensive resident assessment forms'; implementing new technologies and programmes to improve care for residents and families, such as 'telehealth' and 'wound care programs'; and planning a 'Lunch and Learn' speaker series within the nursing home. Interestingly, administrators and managers were surprised by the leadership integral to the NP role. Speaking about the initiative take by the NP in her nursing home to develop practice innovations, an administrator reflected, 'So those are other areas I wasn't expecting; I think I was looking at just the clinical part but the role is so much more than that.'

Discussion

This is the first national study of the work patterns of full-time NPs practising in Canadian nursing homes. The study used mixed methods thereby enabling triangulation of data sources. It involved a large cross-jurisdictional research team composed of investigators and decision makers with a broad range and depth of experience relevant to the study aims. Overall, our study showed that most Canadian NPs perform all activities in the ENPRAS questionnaire. Our analysis indicated that NPs performed activities in the clinician and communicator role subscales on average almost on a daily basis and activities in the counsellor, coach/educator, care manager/coordinator subscales at least three to four times per week. These findings are consistent with studies that confirm NPs' focus on clinical care and communication with residents and families (Bakerjian 2008).

Activities in the collaborator role domain of the ENPRAS were performed at least once per week, which is less often than other activities. This finding suggests that NPs are able to care for most of the day-to-day concerns of residents and families independently and is consistent with studies of NP and physician collaboration in nursing homes and primary care settings (Donald *et al.* 2009). It may also be a reflection of the availability of physicians for consultation.

Across all subscales, the standard deviations were fairly high; for the counsellor subscale it was 237·6, coach/educator 143·3, clinician 136·7, communicator 114·0, collaborator 99·3 and care manager/coordinator 84·4. This suggests that the activities of NPs in nursing homes are varied. Although our response rate was good, our target population was small, and therefore we were insufficiently powered to determine associations between NP activities and structural and process variables at individual, organisational or systems levels. This is an important direction for future research.

From our case studies, we learnt that some NPs were engaged in leadership activities that are not clearly identified in the ENPRAS scale. In Canada, like most other countries, leadership is a competency expected of advanced

practice nurses (Mantzoukas & Watkinson 2007). Our study findings revealed differences among leadership activities of NPs and suggested that the extent to which leadership activities are supported or expected may vary, depending on the management structure and practice priorities of the practice setting. For example, in some nursing homes, the activities expected of NPs are focused almost exclusively on providing primary health care services directly or assisting nursing staff to improve their care provision activities. In other settings, NPs are expected to lead and champion policy development, programme planning and practice changes. Whether or not NPs engage in leadership activities seems to be related to the expectations of the nursing home for the NP role and NP experience and confidence in the role. Our case study findings suggest that some nursing home administrators may not know what leadership activities they can expect from NPs. Administrators in other sectors have identified gaps in their knowledge about NP roles (Carter *et al.* 2013). Further studies are needed to confirm the information needs of nursing home administrators and other organisational characteristics associated with how NP activities are implemented.

Our survey showed no difference in the activities of NPs who provided care in a nursing home with one site compared to those who provided care in a nursing home with multiple sites. This finding must be interpreted with caution given our small sample size and because NPs in our study practiced in nursing homes with no more than four sites. Our case study findings indicated that although nursing home personnel in all participating nursing homes were very satisfied with the work of NPs irrespective of the number of sites, given the choice, they indicated their preference would be to have an NP full-time in a nursing home with one site. The reason for this was because they perceived that resident and family needs warranted the attention of a full-time NP and that more staff and programme development would be possible. That said, McAiney *et al.* (2008) found that two full-time NPs who provided care to 22 nursing homes resulted in a reduction in emergency department transfers and improvement in staff confidence. The role of the NPs in McAiney's study was to provide consultation rather than comprehensive primary health care and the majority of requests to see residents occurred when the NP was already on-site.

More research is needed to better understand how the activities of NPs practising in nursing homes with multiple sites compare to those in nursing homes with one site and whether differences exist in NP satisfaction and outcomes of care for residents and families as well as support for staff. It may be that some NP practice models are better suited than others to meet the specific needs of residents and families in particular contexts. It is well recognised that in primary health care there is no single 'right' model for how primary health care should be organised or delivered (Hutchison *et al.* 2011). It is probable that this will also turn out to be the case in long-term care.

Our study did not have sufficient numbers of full-time NPs to allow cross-provincial comparisons. However, it is possible that differences in NP role activities may exist across jurisdictions where legislation for the NP differs. For example, the province of Quebec, which, at the time of this study did not have NPs in nursing homes, does not allow NPs to make an independent medical diagnosis (Donald *et al.* 2010). We were not able to ascertain if there were differences in the activities of NPs in nursing homes with different characteristics such as location, size and funding model.

Limitations

As there was no reliable source to identify the number of NPs working full-time in nursing homes, we used other methods to make this determination. Our efforts to identify NPs who were eligible for our study were substantial; however, it is possible we may have missed some potential participants. Nevertheless, the high response rate to the survey gives us confidence that our results represent a national perspective. Future research will continue to be challenged by this problem as NP registration data being collected do not distinguish nursing home settings from other geriatric care settings. Lastly, given that this was a national study, conducting more than four case studies would have been preferred, but we were constrained by the available resources.

Conclusions

This is the first national study of NPs in nursing homes in Canada. NPs undertake a range of primary health care and advanced practice nursing activities which they adapt to meet the unique needs of individual nursing homes. The leadership activities of NPs documented in this study add to the knowledge about this role. As the number of NPs in nursing homes grows, it may be possible to detect differences in NPs' activities based on nursing home characteristics and location. Future research would be aided by data systems that enable identification of this population of NPs.

Relevance to clinical practice

Nurse practitioners are autonomous and collaborative team members who enhance the accessibility and quality of primary health care offered in nursing homes and are a

resource for nursing home staff challenged to meet the needs of residents with increasingly complex needs. Knowledge of NP work patterns may enable managers and administrators to implement NP roles that include teaching, coaching and leadership activities that support and extend the capabilities of nursing home staff to provide resident and family care.

Acknowledgements

We acknowledge the contributions of data analyst, James McKinlay, and research assistants, Teresa D'Elia and Clare Parks.

Disclosure

The authors have confirmed that all authors meet the ICMJE criteria for authorship credit (www.icmje.org/ethical_1author.html), as follows: (1) substantial contributions to conception and design of, or acquisition of data or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content and (3) final approval of the version to be published.

Funding

This study was funded by the Canadian Institutes of Health Research, Nova Scotia Health Research Foundation and the British Columbia Ministry of Health, Nursing Directorate. Grant number 85198. The views expressed in this paper are those of the authors and do not necessarily reflect those of the Canadian Institutes of Health Research, Nova Scotia Health Research Foundation and the British Columbia Ministry of Health, Nursing Directorate.

Conflict of Interest

No conflict of interest is declared by the authors.

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