Nursing Practice in Rural and Remote Canada II

Licensed/Registered Practical Nurse National Survey Report

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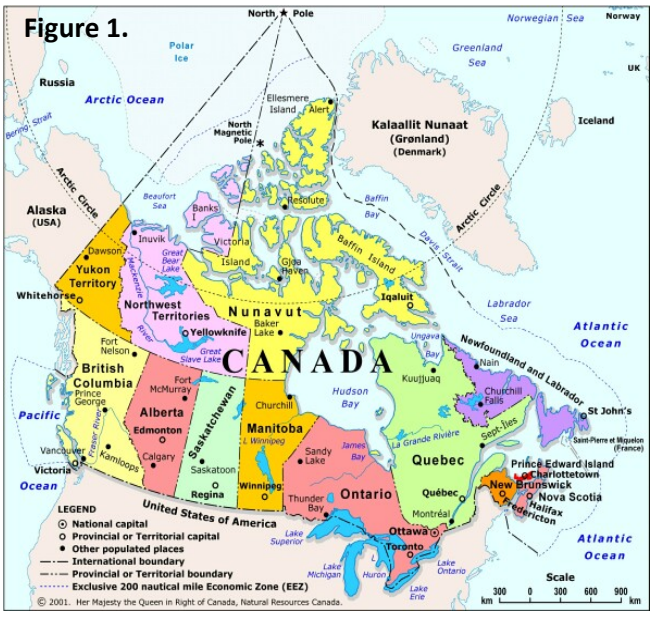
Background

In Canada there is a need to more fully understand the rural and remote nursing workforce in order to inform health human resource planning to better support nurses and improve health services in these areas.

The multi-method national study, *Nursing Practice in Rural and Remote Canada II* (*RRNII*) addressed this need by investigating the nature of nursing practice in rural and remote Canada and factors that can enhance access to nursing services. The *RRNII* study aims to provide insights into the work lives and practice experiences of registered nurses (RNs), nurse practitioners (NPs), licensed/registered practical nurses (LPNs), and registered psychiatric nurses (RPNs) in rural and remote communities in all Canadian provinces and territories. The study is intended to inform policy and practice decisions regarding nursing service capacity (nursing personnel and activities) and access to care for those living in rural and remote communities in Canada (http://www.unbc.ca/rural-nursing).

This survey partially replicates and considerably extends a national, cross-sectional survey of rural/remote RNs and NPs undertaken in 2001-2004, the *Nature of Nursing Practice in Rural and Remote Canada (RRNI)* (MacLeod, Kulig, Stewart, Pitblado, & Knock, 2004). The present *RRNII* survey places greater emphasis on primary health care (PHC) and includes all regulated nurses – NPs, RNs, and LPNs – who practice in all provinces and territories,

Figure 1.



and RPNs, who practice in the four western provinces as well as the territories. This final report summarizes results from the national survey regarding the nature of LPN nursing practice in rural/remote Canada, including a description of the LPNs, their work settings, perceptions of scope of practice, career plans, and how these LPNs experience accessibility and quality of PHC in their workplace.

Selecting and contacting participants

A mail survey was distributed primarily through the nursing associations/regulatory bodies in each province and territory between April 2014 and September 2015. The questionnaire was sent to a target sample of nurses (i.e., RNs, LPNs, RPNs) who resided in the rural and remote areas (less than 10,000 core population) of each Canadian province (derived by analysis of the population of the rural nurses in the 2010 Canadian Institute for Health Information Nurses Database). We also sent questionnaires to all rural and remote NPs, and to all nurses who worked in Nunavut, Northwest Territories, and the Yukon.

Response rate

We received a total of 3,822 completed questionnaires (eligible sample = 9,622) by mail or on-line (2,082 RNs, 163 NPs, 1,370 LPNs, and 207 RPNs) from across Canada. The national response rate was 40% (margin of error 1.5%), with some variation between the provinces and territories. **From across Canada, a total of 1,370 LPNs responded**. The eligible sample of LPNs was 3,653 individuals and the response rate was 38% (n=1,370, margin of error 1.7%). We can say with 99% confidence that the rural Canada LPN respondents are representative of rural Canada LPNs as a whole[1].

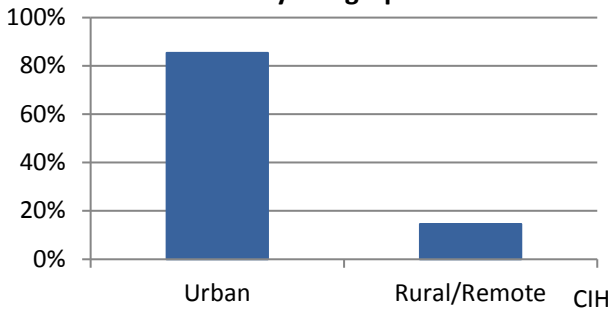
In this report, the phrase 'rural Canada LPNs' is used to refer to the sample of LPNs who responded to the *RRNII* survey. The focus of this report is the rural LPN workforce data from the *RRNII* survey. To provide a context however, in this report, we compare three sets of data: rural LPN data from the *RRNII* survey, rural Canada nurse (RNs, NPs, and RPNs) data from the *RRNII* survey, and all LPN data from the Canadian Institute for Health Information analysis of the 2015 regulated nursing workforce database (CIHI, 2016a; CIHI, 2016b; CIHI, 2016c). The CIHI data situates the *RRNII* study findings in the context of the overall LPN nursing workforce. **Appendix B** provides comparisons among the RN, NP, LPN, and RPN data from the *RRNII* survey.

Who are the LPNs in rural Canada?

In 2010, 18% of Canada's population lived in rural communities, where roughly 18% of Canada's LPNs worked (Pitblado, Koren, MacLeod, Place, Kulig, & Stewart, 2013).

In 2015, the rural population of Canada accounted for 17% of the total population living in the provinces and 52% of the total population living in the territories (those outside of Yellowknife, Iqaluit, and

Figure 2. The Regulated LPN Nursing Workforce in Canada by Geographic Distribution



CIHI, 2016b

[1] The population of rural LPNs, the sample of LPNs, as well as the number of LPN surveys received back in the *RRNII* study from the sample, were used to calculate confidence levels and determine the representativeness of the respondents.

Whitehorse) (CIHI, 2016a). In the same year, 14% of the provinces' LPNs and 30% of the territories' LPNs worked in rural settings (CIHI, 2016c). See **Figure 2** for a breakdown of the rural and urban LPN nursing workforce in 2015.

Region of primary nursing employment

Of the 1,370 LPNs who responded to the *RRNII* survey, the greatest number resided in the Atlantic region (32%), followed by Manitoba/Saskatchewan (22%), Alberta/British Columbia (19%), Ontario (14%), Québec (8.4%), and the Territories (Yukon, Northwest Territories, Nunavut) (5.8%).

Gender and age

The large majority of rural Canada LPNs were female (94%) with ages ranging from 19-70 years. The average age of rural Canada LPNs (46.0) in the *RRNII* survey increased from 2010, when the average age of rural LPNs was 44.8 years (Pitblado et al., 2013). Over half of the LPNs were between the ages of 35 and 54 years (51%); 22% were below 35 years of age and 28% were above 55 years of age. Across all provinces and territories, the average age was lowest in Nunavut (39.2), followed by Québec (39.6) and was highest in the NWT (51.2), followed by PEI (51.0). For a detailed age breakdown, see **Table 1**.

Table 1. Age Distribution of LPNs in Rural Canada

	< 25 %	25-34 %	35-44 %	45-54 %	55-64 %	≥ 65 %
LPNs (n = 1,370)	3.7	17.8	20.4	30.3	25.4	2.4

Marital status and dependents

The large majority of rural Canada LPNs were married or living with a partner (79%); 11% were single, 9.6% divorced/separated, and 1.3% widowed. A sizable minority of LPNs had one or more dependent children living with them (43%) and 5.8% were providing care for a dependent adult in their home.

Indigenous ancestry

A larger proportion of rural Canada LPNs in the *RRNII* survey self-declared as having First Nations, Inuit, or Métis ancestry (8.4%), in comparison to 5.9% of RNs, 4.0% of NPs, and 8.0% of RPNs. It is important to note that some nurses may have chosen not to self-declare.

General and mental health

The large majority of rural Canada LPNs reported that they were in good/very good health (80%); the remaining LPNs were either in excellent health (14%) or were in fair/poor health (6.9%). These LPNs reported similarly about their mental health, such that 76% identified they were in good/very good mental health; the remaining LPNs were either in excellent mental health (17%) or were in fair/poor mental health (7.3%).

Education

Rural Canada LPNs most commonly held a diploma in practical nursing (99.6%) as their highest obtained nursing education credential. The remaining 0.4% of LPNs held a bachelor's degree in nursing as their highest nursing credential. This may be reflective of internationally educated RNs that did not have a license to practice as an RN in Canada. See **Appendix B** for a comparison of highest nursing credentials between rural Canada nurses.

Although the large majority of rural Canada LPNs held an education credential in nursing, a subset of LPNs (n=21) held a non-nursing credential in addition to a nursing credential. The most common non-nursing education credential was a bachelor's degree, which 1.4% of LPNs had completed.

Number of years licensed to practice

The majority of rural Canada LPNs had been registered/licensed to practice in Canada for over ten years (58%). Interestingly, 15% of LPNs had been licensed to practice for only three years or less.

Size of childhood community

The large majority (75%) of rural Canada LPNs reported growing up in a community with a population of less than 10,000; 40% of all LPNs grew up in a community with a population of less than 1,000. Notably, 18% of all LPNs grew up outside of any city or town.

What are the work settings of LPNs in rural Canada?

Nursing employment status

The large majority of rural Canada LPNs identified themselves as employed in nursing (92%), while the remaining 7.6% were either on leave (4.5%) or were retired and occasionally working in nursing (3.1%) on either a casual or short-term contract basis. It is unclear whether the LPNs who were retired and occasionally working in nursing were only retired from full-time employment, or if their setting and provision of direct care had changed. The majority of LPNs held a full-time permanent position (52%) and 35% held a part-time permanent position (respondents could hold more than one position). A further 17% worked casual, 1.8% contract/term, and 0.7% in a job share.

The large majority of rural Canada LPNs (95%) had worked in one to three different rural/remote communities, for three months or longer, over the course of their nursing career. A small proportion of LPNs (4.2%) had worked in four to six different rural/remote communities. Interestingly, 23% of NPs, 10% of RNs, and 8.1% of RPNs had worked in four to six different rural/remote communities.

Work setting and distance from major centres

The majority (71%) of rural Canada LPNs reported working in a primary work community with a population of less than 10,000. A small minority of LPNs (12%) reported working in a community with a population of less than 1,000 and 2.9% of all LPNs reported their primary work community to only be accessible by plane. **Table 2** shows the population of the primary work community of rural LPNs overall.

Above half of rural Canada LPNs reported living in their primary work community (53%). Of the nurses who were not residing in their primary work community, 61% traveled to work on a daily basis, with a typical commute time between one and seven hours per week (65%).

Table 2. Population of Primary Work Community, LPNs in Rural Canada

Community Population	LPNs % (n = 1,370)
≤ 999	12.1
1,000 - 2,499	12.8
2,500 - 4,999	14.8
5,000 - 9,999	31.2
10,000 - 29,999	22.9
≥ 30,000	6.2

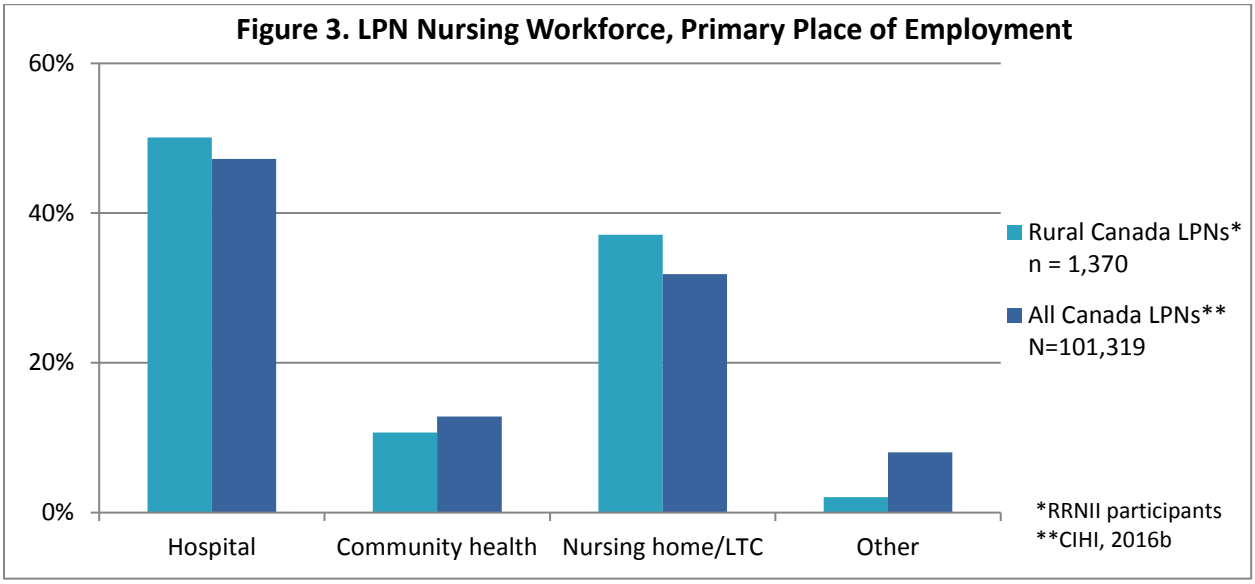
The majority of rural Canada LPNs (54%) indicated that they worked more than 200 km from a centre with a population of over 50,000 and one third of LPNs (33%) reported their primary work community being less than 100 km from a centre with a population of 10,000-49,999. The majority of LPNs (63%) reported that their primary work community was less than 100 km from a basic referral centre. Moreover, 20% of LPNs identified that their primary work community was more than 500 km from an advanced referral centre.

The large majority of rural Canada LPNs were satisfied with their home community (86%); the remaining 14% were either neutral (11%) or were dissatisfied (3.6%). Similarly, the large majority of LPNs were satisfied with their primary work community (82%); the remaining 18% were either neutral (13%) or were dissatisfied (5.5%).

Area of nursing practice and primary place of employment

The majority of rural Canada LPNs identified their area of current practice to be long-term care (54%) and 44% identified acute care (respondents could identify more than one practice area). **Figure 3** shows the primary place of employment for rural Canada LPNs compared to all LPNs in Canada overall. As Figure 3 shows, 50% of rural Canada LPNs worked in a hospital setting and 37% in a nursing home or long-term care setting.

Figure 3. LPN Nursing Workforce, Primary Place of Employment



Notes:

Hospital *includes hospital, mental health centres, rehabilitation/convalescent centres and integrated facilities.*

Community health *includes community health centres, home care agency, nursing station (outpost or clinic), NP led clinic, multidisciplinary primary healthcare clinic and public health department/unit.*

Nursing home/LTC *includes nursing home/long-term care facility.*

Other *place of work includes professional association/government, occupational health, private nursing agency/self-employed, educational institution, physician's office/family practice unit or team and other place of work.*

In terms of current primary position, the large majority of rural Canada LPNs worked as staff nurses (95%), and 2.8% worked as managers. The large majority of LPNs were satisfied with their current nursing practice (77%); the remaining 23% were either neutral (12%) or were dissatisfied (11%).

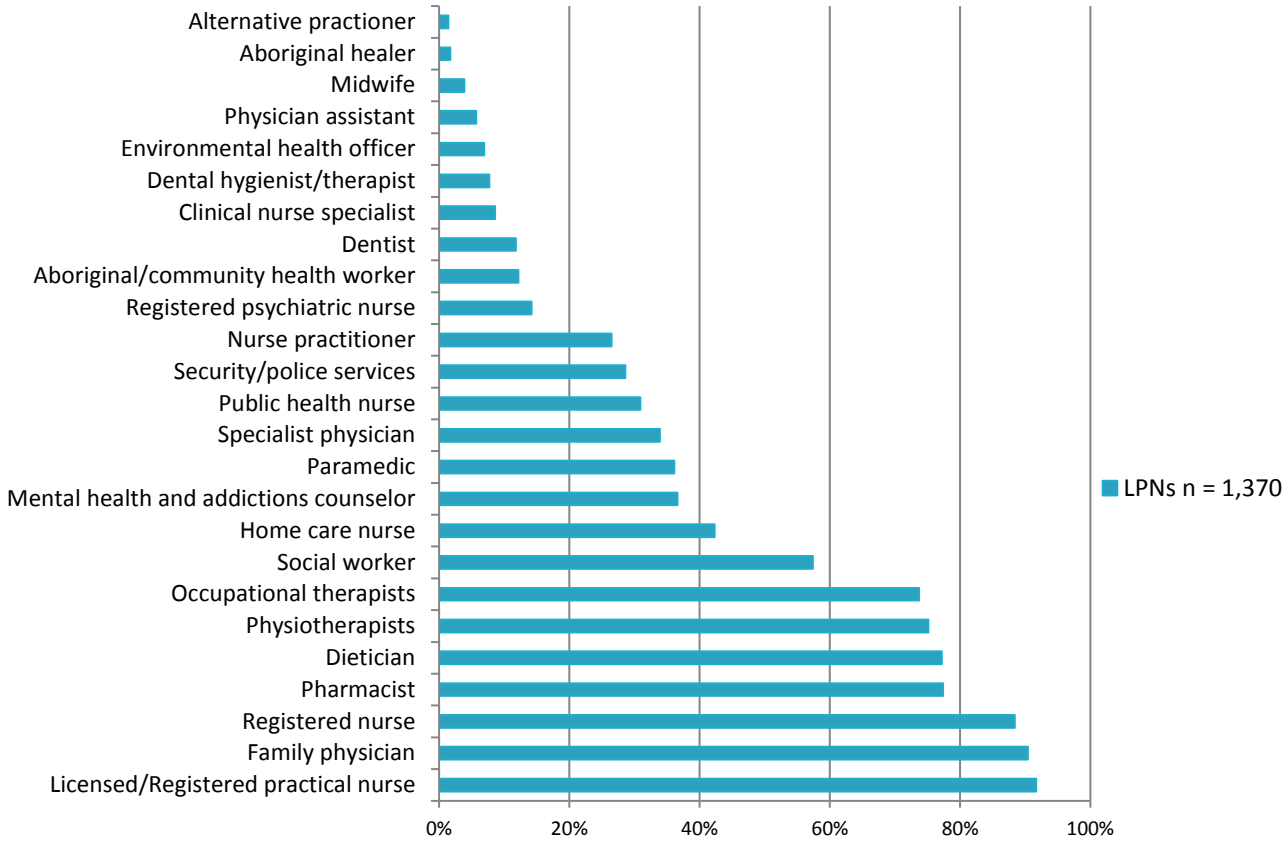
Finally, regarding duration of primary position, 21% of rural Canada LPNs had been in their primary position for 20 years or more, 15% for between 6-9 years, 21% for 3-5 years, and 16% for 1-2 years. Over a quarter of LPNs (26%) had been employed by their primary employer for 20 years or more.

Interprofessional practice

Rural Canada LPNs worked in teams at their primary workplace. All LPNs reported working with at least one other professional provider. Moreover, LPNs typically worked with more than 5 other LPNs (75%) and RNs (61%). However, only 22% of LPNs worked with NPs and 19% worked with RPNs (in the four western provinces and the territories where RPNs work).

The large majority of rural Canada LPNs had a support network of colleagues who would provide consultation and/or professional support (80%). LPNs identified a wide variety of providers that were part of their usual interprofessional team, including other LPNs (92%), family physicians (90%), RNs (88%), pharmacists (77%), dieticians (77%), physiotherapists (75%), and occupational therapists (74%). See **Figure 4** for a complete breakdown of providers who rural LPNs identified working with as part of their usual interprofessional team.

Figure 4. Who LPNs in Rural Canada Work With



Work hours and requirement to be on-call

The majority of rural Canada LPNs worked full-time hours (53%), with 31% working less than full-time hours and 16% working more than full-time hours. Rotating shifts (43%) and day shifts (39%) were most common, with shift lengths typically either 12 hours (48%) or 8 hours (45%). The majority of LPNs indicated that while their shift pattern is predictable (77%), they have no input into how their work schedule is developed (61%).

The small minority of LPNs were required to be on-call for their work (16%). Of the LPNs who were required to be on-call, 41% reported being called back to work at least a few times a month and 17% are called back to work at least once a week. The majority of all LPNs were satisfied with the amount of time they were on-call (56%); the remaining 44% were either neutral (30%) or were dissatisfied (14%).

Information access and education sources

Rural Canada LPNs had access to various information sources in their primary workplace. For instance, LPNs had direct access to high speed internet (85%), electronic communication between healthcare providers (73%), and teleconferencing (60%). In contrast, a sizable minority of LPNs had direct access to videoconferencing (44%) and some had access to web conferencing (24%).

In the *RRNII* survey LPNs were asked to indicate how often they use in-person and online/electronic education sources to update their nursing knowledge. Most LPNs used online/electronic sources to update their nursing knowledge at least once per month (62%), rather than in-person education sources (43%).

Violence in the workplace

Rural Canada LPNs both experienced and witnessed violence in their workplace while carrying out their nursing responsibilities. In the four weeks before the survey, LPNs experienced emotional abuse (39%), physical assault (37%) and threat of assault (31%), and a smaller proportion experienced verbal/sexual harassment (22%), property damage (3.0%), sexual assault (1.8%) and stalking (1.2%).

In the *RRNII* survey, LPNs reported having witnessed violence in the workplace. Rural Canada LPNs had witnessed emotional abuse (41%), physical assault (38%) and threat of assault (35%), and some had witnessed verbal/sexual harassment (21%), property damage (4.5%), sexual assault (2.4%) and stalking (1.3%).

What is the scope of LPN practice in rural Canada?

Figure 5. Promotion, Prevention and Population Health: Rural Canada Nurses

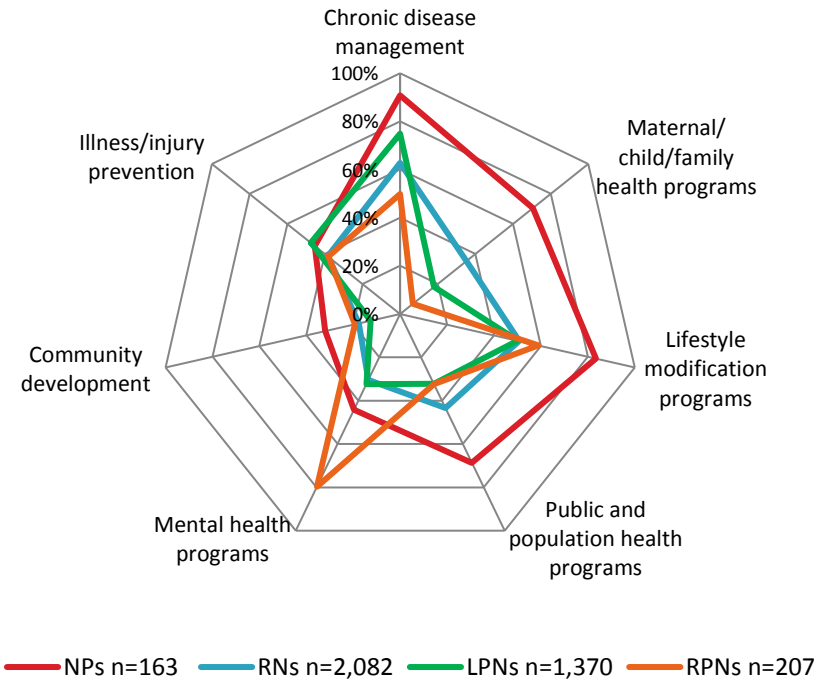
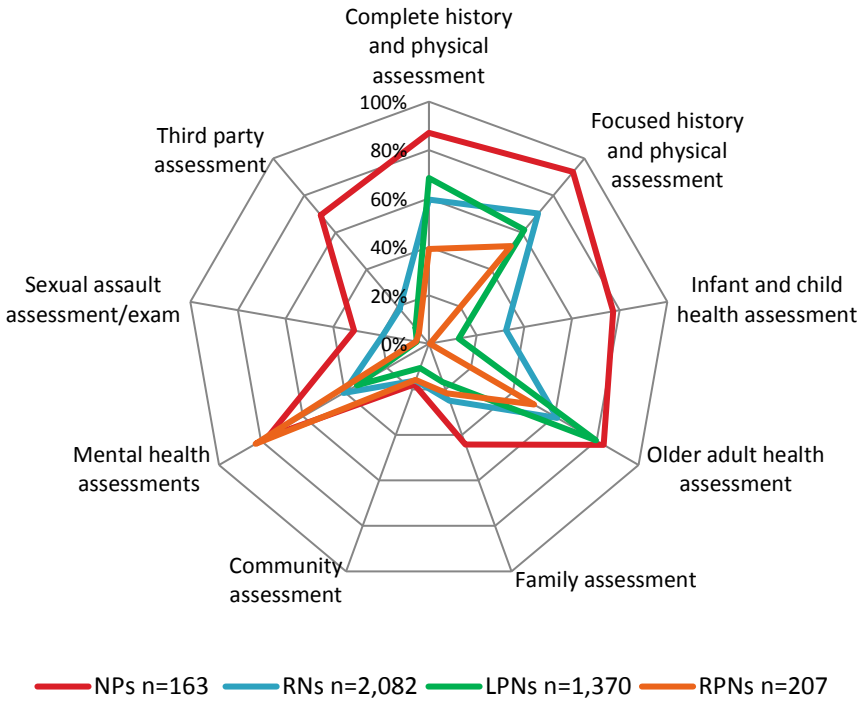


Figure 6. Assessment: Rural Canada Nurses



A distinctive characteristic of rural nursing is its broad scope of practice, which is closely related to the rural context of each community and limited access to healthcare resources. In an attempt to shed some light on this phenomenon and find commonalities, nine main categories of practice were presented to respondents, each consisting of several items. Survey respondents were asked to mark all items they were responsible for. Note that the responses relate to what nurses perceived to be their responsibilities rather than what may or may not have been within their legislated scope of practice. Detailed tables are included in **Appendix A**.

The large majority of rural Canada LPNs reported working within their registered/licensed scope of practice (77%). The remaining LPNs either thought of their nursing role as below their licensed scope of practice (18%) or as above their licensed scope of practice (5.0%).

In terms of *Promotion, Prevention and Population Health*, rural Canada LPNs reported providing chronic

disease management (75%) and lifestyle modification programs (50%), which is illustrated in **Figure 5**.

Figure 7. Therapeutic Management: Rural Canada Nurses

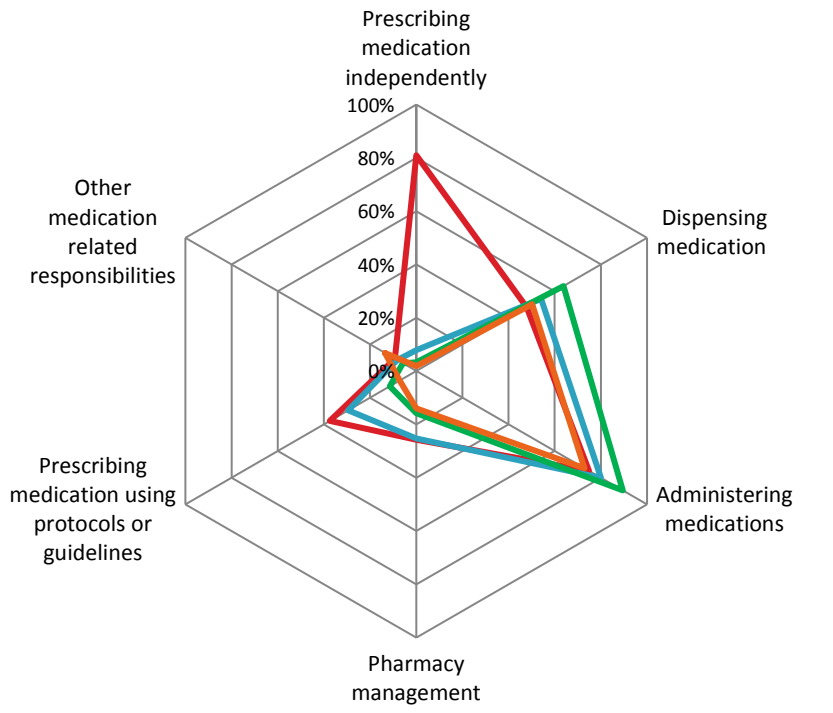
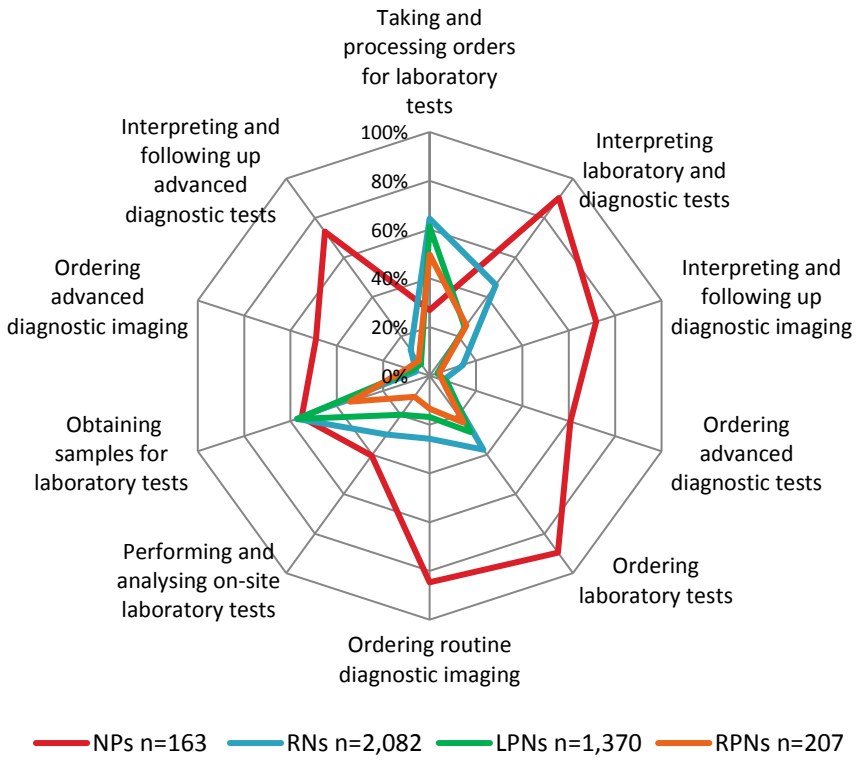


Figure 8. Diagnostics: Rural Canada Nurses



Regarding *Assessment*, rural Canada LPNs reported providing health and wellness assessments such as older adult health assessment (80%), complete history and physical assessment (69%), and focused history and physical assessment (61%). As illustrated in **Figure 6**, rural Canada LPNs generally had a more narrow assessment responsibility compared to rural RNs, with the exception of older adult health assessment and complete history and physical assessment.

Concerning *Therapeutic Management* (**Figure 7**), rural Canada LPNs reported two responsibilities: administering (90%) and dispensing medication (64%).

In regard to *Diagnostics*, which included *Laboratory Tests, Diagnostic Tests,* and *Diagnostic Imaging*, the majority of rural Canada LPNs reported taking and processing orders for laboratory tests (61%) and obtaining samples for laboratory tests (57%) (**Figure 8**). Nearly 56% of rural Canada LPNs said they were not responsible for any aspect of diagnostic tests. Similarly, 46% of LPNs indicated no

Figure 9. Diagnosis and Referral: Rural Canada Nurses

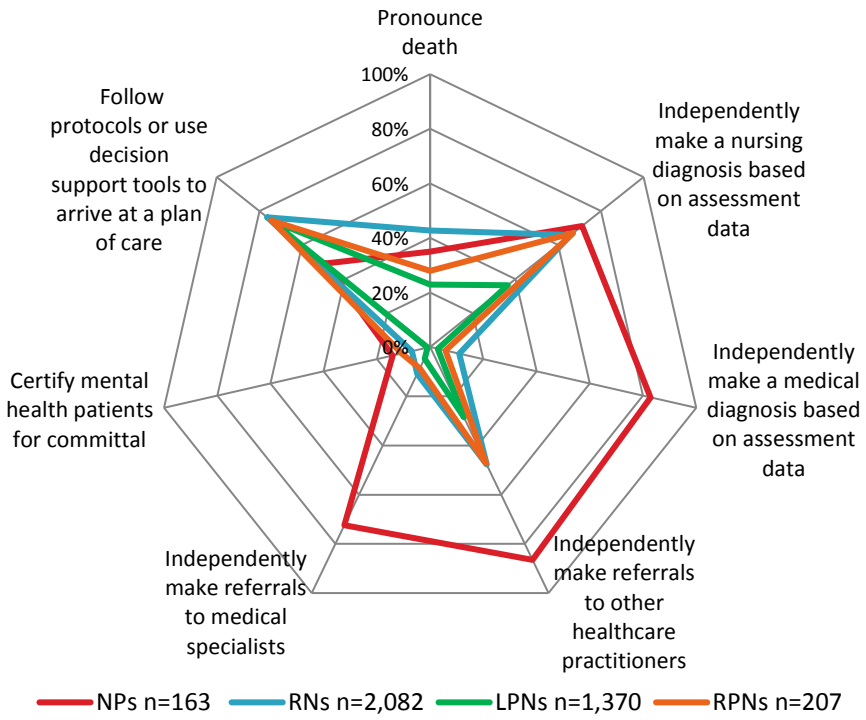
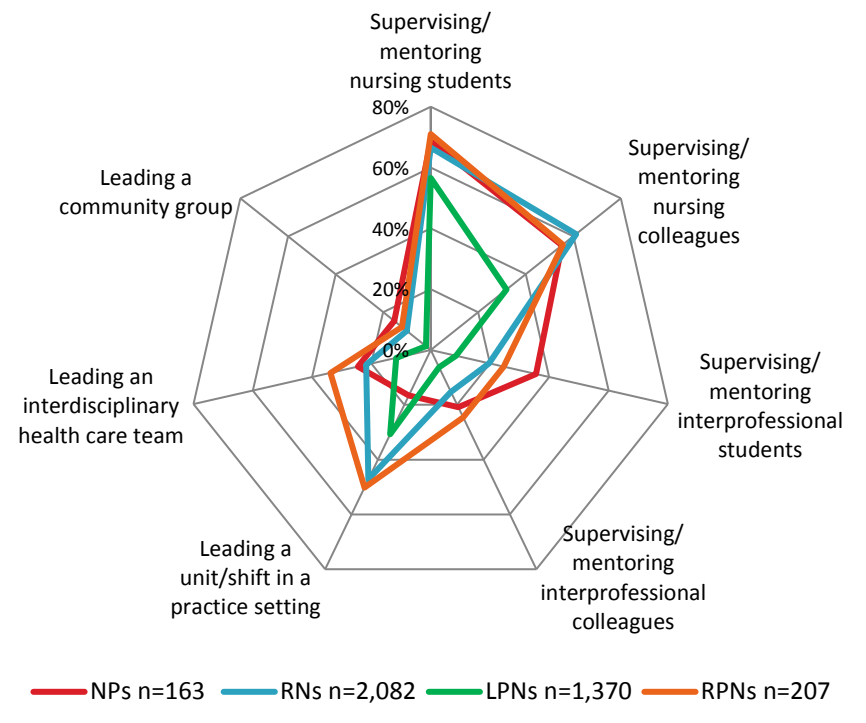


Figure 10. Leadership: Rural Canada Nurses



responsibility for any part of diagnostic imaging.

In terms of *Diagnosis and Referral*, the majority of rural Canada LPNs reported following protocols or using decision support tools to arrive at a plan of care (74%) (displayed in **Figure 9**). Rural Canada LPNs indicated a more narrow responsibility on other diagnosis and referral activities as compared to other nurses.

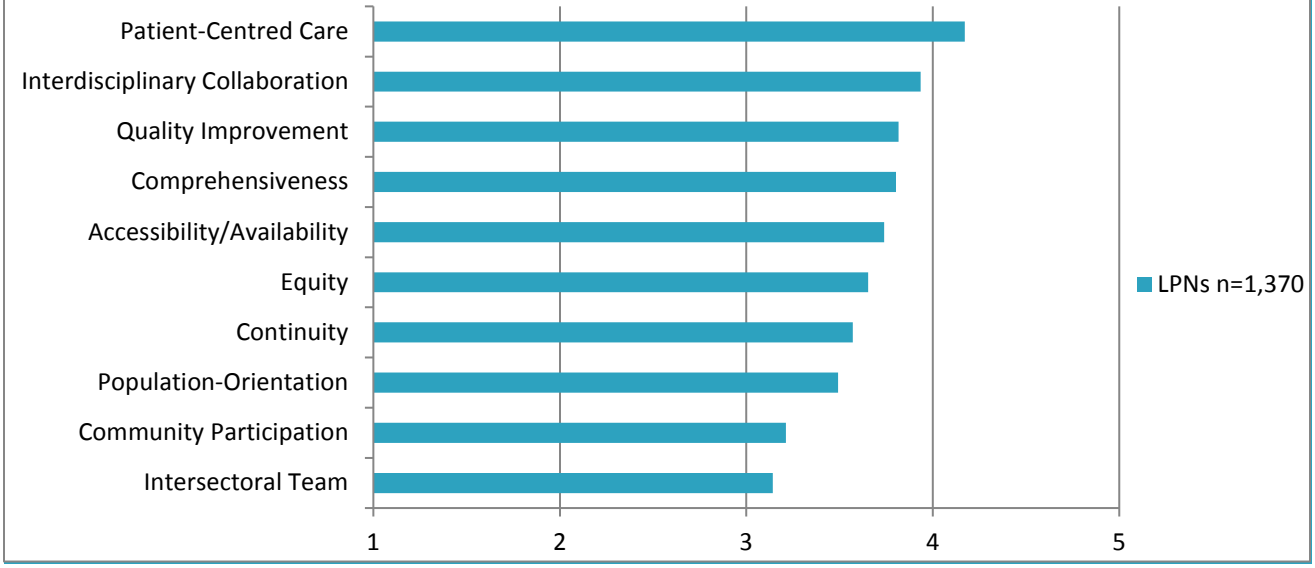
In the category of *Emergency Care and Transportation*, the majority (53%) of rural Canada LPNs were not responsible for any related activities. The minority of LPNs were responsible for organizing urgent or emergent medical transportation (36%).

Finally, in regard to *Leadership*, the majority of rural Canada LPNs reported involvement in supervising/ mentoring nursing students (57%), although this is a lower proportion than that found for other rural nurses. Overall, rural Canada LPNs were less engaged in leadership activities than their counterparts (**Figure 10**).

What do rural Canada LPNs say about primary health care in their workplace?

In the *RRNI* survey it was clear that rural nurses in all settings were engaged in primary health care. In the *RRNII* survey, nurses were asked about aspects of primary health care at their workplace through the Primary Health Care Engagement Scale (Kosteniuk et al, 2016; Kosteniuk et al., 2017). Items were grouped in 10 categories: patient-centred care, interdisciplinary collaboration, comprehensiveness of care, quality improvement, accessibility/availability, continuity of care, equity, population-orientation, community participation, and intersectoral team. Each item was rated on a 5 point Likert Scale (1= strongly disagree to 5= strongly agree). Mean scores are reported in **Figure 11**.

Figure 11. Rural Canada LPNs' Perspectives on Primary Health Care in Their Workplace



It is evident that rural Canada LPNs perceived their workplace to be engaged in primary health care, often to a slightly lesser extent than other rural nurses in Canada overall. However, LPNs reported more positively on quality improvement, equity, continuity, and population-orientation than their counterparts (**Appendix B**).

Rural Canada LPNs rated *Patient-Centred Care* strongly positive, reporting that their patients are treated with respect and dignity, their workplace is a safe place for patients to receive healthcare services, and that providers are concerned with maintaining patient confidentiality. These nurses were positive that their workplace supports healthcare providers in thinking of patients as partners.

In general, rural Canada LPNs rated *Interdisciplinary Collaboration* positively. Included are LPNs' perceptions that healthcare providers from other disciplines consult them regarding patient care and that it is understood who should take the lead with a patient when there is overlap in responsibilities. LPNs were strongly positive that a collaborative atmosphere exists between healthcare providers from different disciplines.

In terms of *Quality Improvement*, rural Canada LPNs were positive that their workplace keeps patient charts current, that their workplace uses patient health indicators to measure quality improvement, and that their workplace regularly measures quality. Importantly, LPNs were strongly positive that their workplace has a process for responding to critical incidents.

Similarly, *Comprehensiveness* of care was rated positively. Rural Canada LPNs reported that their workplace offers harm reduction or illness prevention initiatives, that chronic conditions are addressed and that patients are referred to necessary services when they require a service their workplace does not provide.

Overall, *Accessibility* to healthcare services was regarded positively, although rural Canada LPNs were strongly positive that patients needing urgent care can see a healthcare provider the same day if their workplace is open. LPNs were positive that health services are organized to be as accessible as possible and that if their workplace is closed, patients can still see a healthcare provider in person or can get medical advice by phone.

Equity was also perceived positively by rural Canada LPNs. Included are LPNs' perceptions that their workplace understands the impact of social determinants of health, that their workplace is organized to address the needs of vulnerable or special needs populations, and that regardless of geographic location or individual/social characteristics, patients have access to the same healthcare services. LPNs reported to a lesser extent, but still positively, that patients can afford to receive the healthcare services they need.

Continuity of Care was also rated positively by rural Canada LPNs, although some concerns were raised. These LPNs were strongly positive they have a good understanding of their patients' health history and that they have easy access to information about past care provided to patients in their workplace. However, coordination of care across settings is a different matter. Coordinating care for patients that takes place outside of their workplace and getting access to information about patients' past health care provided by other healthcare providers outside of their workplace were perceived less positively.

Population Orientation was perceived positively by rural Canada LPNs, with a good fit between workplace services and community healthcare needs. Also included are LPNs perceptions that their workplace has taken part in a needs assessment of the community, that their workplace keeps current registries of patients with chronic conditions, that their workplace is quick to respond to the health needs of the community, and that their workplace monitors patient outcome indicators.

A similar pattern of results is seen regarding *Community Participation*, which was rated positively by rural Canada LPNs. These LPNs reported that their workplace seeks input from the community about which services are needed, that healthcare providers are supported in thinking of the community as a partner, and that their workplace has implemented changes that emerged from community consultations. LPNs reported to a lesser extent, but still positively, that community members are treated as partners when deciding about healthcare service delivery changes.

Finally, there were positive ratings of *Intersectoral Teams,* although some important findings must be noted. Rural Canada LPNs were positive that their workplace works closely with community agencies, that there have been improvements in the way community services are delivered based on community agencies

working together, and that they personally work closely with community agencies. However, LPNs generally disagreed with the statement that community agencies (e.g., education, government, law enforcement, civic facilities, non-profit groups) meet regularly to discuss common issues that affect health. This dimension was perceived negatively.

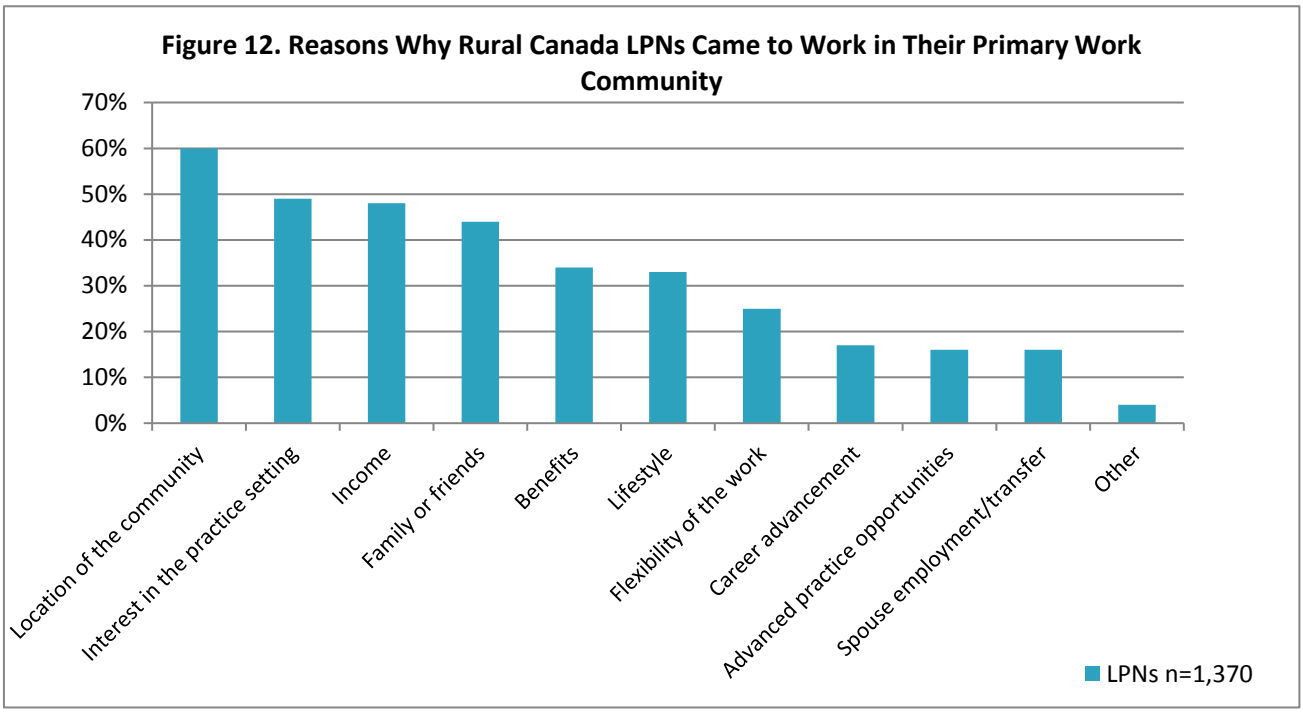
Further details on the Primary Health Care Engagement Scale can be found in the Kosteniuk et al. (2017) article titled *Exploratory Factor Analysis and Reliability of the Primary Health Care Engagement (PHCE) Scale in Rural and Remote Nurses: Findings from a National Survey*.

What are the career plans of LPNs in rural Canada?

Recruitment and retention

Recruiting and retaining nurses in rural nursing positions is an ongoing challenge (Kulig, Kilpatrick, Moffitt, & Zimmer, 2015). The most frequent reasons rural Canada LPNs came to work in their primary work community were location of the community (60%), interest in the practice setting (49%), income (48%), and family or friends (44%). See **Figure 12** for further information on LPN recruitment factors.

Figure 12. Reasons Why Rural Canada LPNs Came to Work in Their Primary Work Community

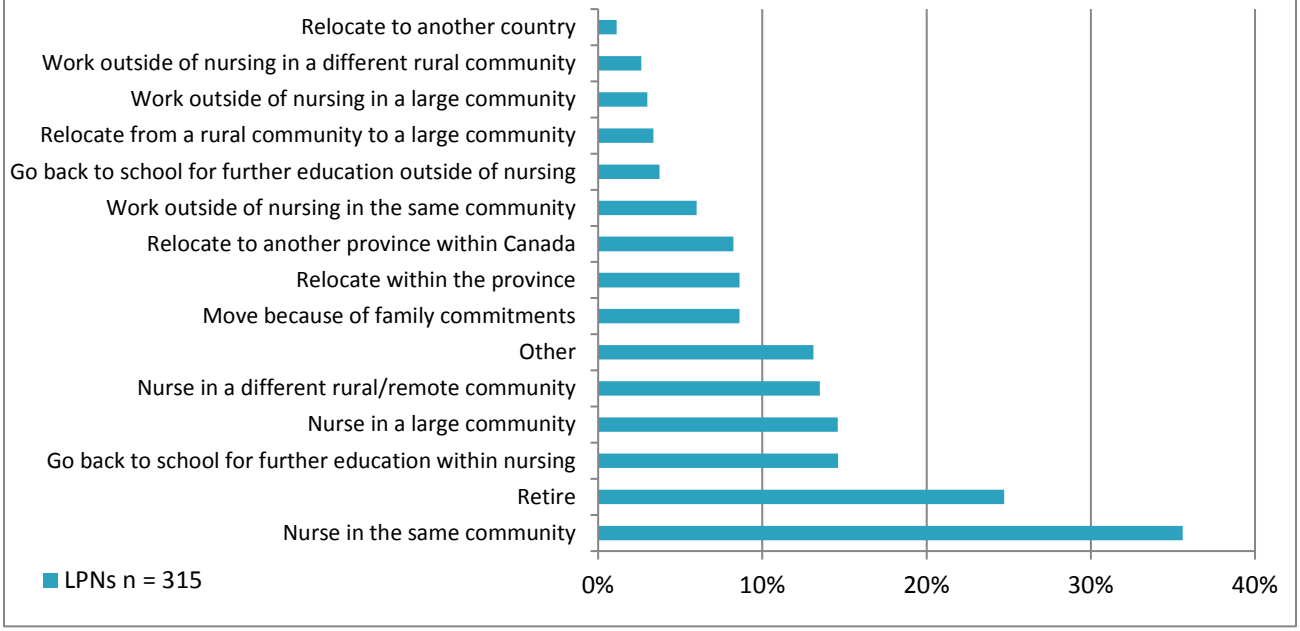


The reasons why rural Canada LPNs continued working in their primary work community were similar to the reasons why they came in the first place. The retention factors included location (59%), income (58%), family or friends (51%), interest in the practice setting (48%), and benefits (42%).

Career plans over the next 12 months

In the *RRNII* survey, nurses were asked about their career plans over the next 12 months and again for the next 5 years. One fourth of LPNs (24%) were planning to leave their present nursing position within the next 12 months, compared to 29% of rural Canada RNs, 24% of NPs, and 25% of RPNs. Rural LPNs who intended to leave (n=315) reported a variety of career plans, namely to nurse in the same community (36%) or retire (25%). The average age of LPNs planning to retire was 60.2 years. See **Figure 13** for a detailed breakdown of future career plans of rural Canada LPNs. Across the country, the greatest proportion of LPNs intending to retire resided in Manitoba/Saskatchewan (39%) and the lowest proportion resided in Québec (13%). Interestingly, a smaller proportion of rural Canada LPNs intended to retire compared to RNs (32%) and RPNs (48%); only 13% of NPs intended to retire.

Figure 13. Future Plans of Rural Canada LPNs who Intended to Leave Within the Next 12 Months



Rural Canada LPNs who stated they intended to leave said that they would consider continuing to nurse in a rural/remote community if certain conditions were met, such as if they were to receive an annual cash incentive (44%), have increased flexibility in scheduling (40%), utilize more of their skills (38%), and update skills/knowledge (36%).

Regarding career plans for the next 5 years, the majority of rural Canada LPNs were planning to nurse in the same community (71%), while 25% were planning to retire; compared to 20% of NPs, 33% of RNs and 34% of RPNs who were planning to retire.

Limitations

The *RRNII* findings provide a rare insight into the working lives of LPNs serving some of the most under-resourced rural and remote communities in Canada. Moreover, *RRNII* is the first-ever comprehensive study of the rural and remote LPN workforce.

The number of rural Canada LPNs who responded to the *RRNII* survey was sufficient for statistical reporting, but lower than the number expected as reflected in the rate of response overall (38%). Nevertheless, we can say with 99% confidence that the rural Canada LPN respondents are representative of rural Canada LPNs as a whole. However, we are unable to compare findings by province due to lower response rates in some provinces. We compared the age and gender characteristics of the *RRNII* study's sample of LPNs with all rural Canada LPNs to determine how similar or different they were. The two samples were comparable for male LPNs, although the *RRNII* survey under-represented female LPNs and age categories were over or under-represented (CIHI, 2017). Because of this, findings should be interpreted with caution. As well, in this report, statistical associations are not reported.

It should be noted that some respondents may have interpreted certain items in ways unintended by the researchers (e.g., scope of practice items), possibly reducing the reliability of these items. As well, provincial and territorial variations in terminology and legislation may have also had an effect on the interpretation of some items. However, the research and advisory teams representing all provinces and territories reviewed the final version of the survey carefully in this regard.

It should also be noted that further analyses are being conducted on the *RRNII* data, which focus on primary health care and work settings, scopes of practice, career plans, and the qualitative comments made by nurses who responded to the survey. When completed, the publications and presentations that arise from these analyses will be noted in the *RRNII* website: http://www.unbc.ca/rural-nursing

Summary

In 2010, 18% of Canada's population lived in rural communities, which is where roughly 18% of Canada's LPNs worked (Pitblado et al., 2013). In 2015, 17% of the total population living in the provinces and 52% in the territories lived in rural areas (CIHI, 2016a). In the same year, 14% of the provinces LPNs and 30% of the territories LPNs worked in rural settings (CIHI, 2016c).

The large majority of rural Canada LPNs who responded to the *RRNII* survey were female and a lower proportion of rural LPNs were over 55 years of age compared to rural Canada RNs and RPNs. A diploma in practical nursing was the most common highest nursing education credential.

Rural Canada LPNs appear to work in larger rural settings, with the large majority working in a primary work community with a population greater than 2,500. Just above half reported living in their primary work community.

Most LPNs worked in either acute or long-term care, with half of the LPNs working in a hospital setting. It is interesting that the work settings of rural Canada LPNs were similar to the work settings of all LPNs in Canada. Rural Canada LPNs identified working in interprofessional teams with a support network of colleagues. The large majority of rural Canada LPNs were employed in a permanent position either full-time or part-time, with rotating shifts being the most common. Although only the slight majority of LPNs held a full-time permanent position, it is unclear whether some LPNs chose part-time work or whether these findings are more so reflective of structural issues. Relatively few LPNs were required to be on-call.

Rural Canada LPNs cited various reasons for coming to their primary work community, including location of the community, interest in the practice setting, income, and family or friends. These were the same factors that contributed to LPNs continuing to work in their primary work community. Notably, the primary factors that contributed to LPNs coming and continuing to work in their primary work community differed from those of other nurses (see Supplemental Figure 13). A small proportion of LPNs were planning to leave their present nursing position within the next 12 months. Of those nurses, most planned to nurse in the same community or retire. A quarter of all LPNs were planning to retire in the next 5 years. A lower proportion of LPNs intend to retire in the next 5 years compared to rural Canada RNs and RPNs.

Although the large majority of LPNs reported working within their licensed scope of practice, many LPNs perceived themselves as working below their scope of practice (nearly 1 in 5). As such, LPN perception of scope of practice merits further study. Rural Canada LPNs reported being most engaged in chronic disease management, history and physical assessment, older adult health assessment, taking and processing orders for laboratory tests, obtaining samples for laboratory tests, and supervising/mentoring nursing students.

Notably, rural Canada LPNs reported they were satisfied with both where they work and where they live, which may suggest resiliency against the unique challenges of living and working rural. However, it is of concern that 11% of LPNs were dissatisfied with their current nursing practice.

Rural Canada LPNs reported both experiencing and witnessing violence in the workplace in the four weeks prior to the survey, yet these nurses reported that their workplaces are safe. As such, further research is warranted. Future research should consider contributing factors such as work conditions, nature of the work, increasing patient populations, workload, absenteeism, and mental health in relation to emotional abuse and violence in rural and remote communities. These findings call for supports such as conflict resolution and debriefing in the workplace, as well as other actions to address the root cause/s of such violence.

LPNs were engaged in primary health care and reported positively that their workplace was engaged in the dimensions of primary health care, especially patient-centred care.

The *RRNII* survey raises the need to further explore the nature of LPN practice in rural and remote Canada, while also considering population trends and needs. *RRNII* data merits consideration within the context of evolving nursing roles within the context of other health providers, shifting scopes of practice, new ways of interdisciplinary collaboration, and new technologies. Doing so will support the overall goal of providing best health services for rural and remote Canada.

References

Canadian Institute for Health Information [CIHI] (2016a). Regulated Nurses, 2015: Canada and Jurisdictional Highlights. Ottawa, ON: CIHI; 2016. Retrieved from: https://www.cihi.ca/en/pt_highlights_final_en.pdf

Canadian Institute for Health Information [CIHI]. (2016b). *Regulated Nurses, 2015: LPN Data Tables*. Retrieved from: https://www.cihi.ca/sites/default/files/document/lpn_2015_data_tables_en.xlsx

Canadian Institute for Health Information [CIHI] (2016c). Regulated Nurses, 2015. Ottawa, ON: CIHI; 2016. Retrieved from: https://secure.cihi.ca/free_products/Nursing_Report_2015_en.pdf

Canadian Institute for Health Information [CIHI]. (2017). *Health Workforce Database* [Custom Data Request].

Kosteniuk, J.G., Stewart, N. J., Karunanayake, C.P., Wilson, E.C., Penz, K.L., Kulig, J.C., Kilpatrick, K. Martin-Misener, R., Morgan, D.G., MacLeod, M.L.P. (2017). Exploratory factor analysis and reliability of the Primary Health Care Engagement (PHCE) Scale in rural and remote nurses: findings from a national survey. *Primary Health Care Research & Development*, 1-15. doi:10.1017/S146342361700038X

Kosteniuk, J.G., Wilson, E.C., Penz, K.L., MacLeod, M.L.P., Stewart, N.J., Kulig, J.C., Karunanayake, C.P., & Kilpatrick, K. (2016). Development and psychometric evaluation of the Primary Health Care Engagement (PHCE) Scale: A pilot survey of rural and remote nurses. *Primary Health Care Research & Development*, 17, 72-86.

Kulig, J., Kilpatrick, K., Moffitt, P., & Zimmer, L. (2015). Recruitment and retention in rural nursing: It's still an issue! *Canadian Journal of Nursing Leadership*, 28(2), 40-50.

MacLeod, M.L.P., Kulig, J.C., Stewart, N.J., Pitblado, J.R., & Knock, M. (2004). The nature of nursing practice in rural and remote Canada. *Canadian Nurse, 100*(6), 27-31.

Pitblado, R., Koren, I., MacLeod, M., Place, J., Kulig, J., & Stewart, N. (2013). *Characteristics and Distribution of the Regulated Nursing Workforce in Rural and Small Town Canada, 2003 and 2010*. Prince George, BC: Nursing Practice in Rural and Remote Canada II. RRN2-01. http://www.unbc.ca/rural-nursing

Additional references:

Kulig, J., Kilpatrick, K., Moffitt, P., & Zimmer, L., (2013). *Rural and Remote Nursing Practice: An Updated Documentary Analysis*. Lethbridge: University of Lethbridge. RRN2-02. http://www.unbc.ca/rural-nursing

MacLeod, L.P. M., Stewart, J, N., Kulig, J.C., Anguish, P., Andrews, ME., Banner, D., Garraway, L., Hanlon, N., Karunanayake, C., Kilpatrick, K., Koren, I., Kosteniuk, J., Martin-Misener, R., Mix, N., Moffitt, P., Olynick, J., Penz, K., Sluggett, L., Van Pelt, L., Wilson, E., & Zimmer, L. (2017). Nurses who work in rural and remote communities in Canada: A national survey. *Human Resources for Health, 15*(34). Retrieved from http://rdcu.be/sOoD

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Further information about the full study is available from:

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Appendix A. Scope of Practice: Rural Canada Nurses

	Rural Canada			
Promotion, Prevention and Population Health	**RNs % (n=2,082)**	**NPs % (n=163)**	**LPNs % (n=1,370)**	**RPNs % (n=207)**
Chronic disease management	62.7	90.8	74.9	49.8
Maternal/child/family health programs	35.2	70.6	18.0	6.8
Lifestyle modification programs	50.7	83.4	50.1	58.9
Public and population health programs	43.4	68.7	32.3	32.4
Mental health programs	30.4	44.2	32.4	79.7
Community development/individual health capacity building programs	17.7	31.9	12.6	19.3
Illness/injury prevention	38.4	45.4	47.4	38.2
None of the above	21.8	2.5	17.3	7.2

Assessment	**RNs %**	**NPs %**	**LPNs %**	**RPNs %**
Complete history and physical assessment	59.6	87.1	68.5	39.1
Focused history and physical assessment	70.3	92.6	61.4	52.7
Infant and child health assessment	32.3	77.3	12.5	0.5
Older adult health assessment	61.2	83.4	79.7	50.2
Family assessment	25.0	44.2	16.9	21.7
Community assessment	16.2	17.8	10.6	15.9
Mental health assessment	40.7	76.7	34.3	82.6
Sexual assault assessment/exam	19.4	31.3	5.0	5.3
Third party assessment	18.7	69.3	8.6	6.3
Other assessment	2.5	3.1	.9	1.9
None of the above	10.7	2.5	10.8	5.3

Therapeutic Management	**RNs %**	**NPs %**	**LPNs %**	**RPNs %**
Administering oral/SC/IM/topical/inhaled medications	80.0	74.8	89.5	72.9
Dispensing medication	54.2	47.9	63.8	50.2
Pharmacy management	25.3	25.8	15.8	14.0
Prescribing medication independently	7.8	81.0	3.3	1.9
Prescribing medication using protocols or guidelines	29.5	37.4	11.5	7.2
Other medication related responsibilities	8.3	9.2	5.8	13.5
None of the above	14.8	3.1	8.6	19.8

Laboratory Tests	**RNs %**	**NPs %**	**LPNs %**	**RPNs %**
Taking and processing orders for laboratory tests	64.5	27.0	61.2	49.8
Ordering laboratory tests	37.4	89.6	28.5	23.7
Obtaining samples for laboratory tests	57.3	55.2	57.0	34.3
Performing and analyzing on-site laboratory tests	29.8	40.5	19.7	10.6
Interpreting laboratory and diagnostic tests	46.2	90.2	24.5	25.6
None of the above	19.6	3.1	18.4	35.7

	Rural Canada			
Diagnostic Tests	**RNs % (n=2,082)**	**NPs % (n=163)**	**LPNs % (n=1,370)**	**RPNs % (n=207)**
Taking and processing orders for advanced diagnostic tests	46.4	19.0	41.1	33.8
Ordering advanced diagnostic tests	8.1	60.7	7.6	5.3
Performing advanced diagnostic tests	1.6	40.5	1.3	1.0
Interpreting and following up advanced diagnostic tests	13.3	73.0	6.1	7.7
None of the above	49.2	18.4	55.8	63.3

Diagnostic Imaging	**RNs %**	**NPs %**	**LPNs %**	**RPNs %**
Taking and processing orders for diagnostic imaging	53.7	20.2	48.3	43.5
Ordering routine diagnostic imaging	25.7	84.7	16.9	13.5
Ordering advanced diagnostic imaging	5.9	48.5	7.4	9.7
Performing diagnostic imaging	8.8	10.4	.9	0.0
Interpreting and following up diagnostic imaging	14.3	71.8	3.3	4.3
None of the above	39.0	11.7	46.4	52.2

Diagnosis and Referral	**RNs %**	**NPs %**	**LPNs %**	**RPNs %**
Follow protocols/use decision support tools to arrive at a plan of care	76.3	49.1	74.3	74.4
Independently make a nursing diagnosis based on assessment data	65.9	71.2	36.4	67.1
Independently make a medical diagnosis based on assessment data	11.0	82.8	2.8	5.8
Independently make referrals to other healthcare practitioners	47.7	86.5	28.5	47.3
Independently make referrals to medical specialists	11.0	72.4	4.7	8.7
Certify mental health patients for committal	6.8	14.1	.9	10.6
Pronounce death	42.7	35.0	22.9	28.0
None of the above	12.6	4.9	20.2	7.7

Emergency Care and Transportation	**RNs %**	**NPs %**	**LPNs %**	**RPNs %**
Organize urgent or emergent medical transport	52.0	39.9	35.5	35.3
Provide care during urgent/emergent medical transportation	35.4	33.1	19.6	12.6
Respond/lead emergency calls as a first responder	17.8	19.6	10.9	15.0
Respond/lead emergency search and rescue calls in rural, remote or wilderness settings	5.4	6.7	1.8	3.4
None of the above	41.3	50.3	52.8	60.9

Leadership	**RNs %**	**NPs %**	**LPNs %**	**RPNs %**
Supervising/mentoring nursing students	66.6	68.7	56.6	71.0
Supervising/mentoring nursing colleagues	61.2	55.2	31.9	55.6
Supervising/mentoring interprofessional students	19.6	35.6	8.5	24.6
Supervising/mentoring interprofessional colleagues	15.2	20.9	6.3	24.6
Leading a unit/shift in a practice setting	47.2	16.6	30.7	50.2
Leading an interdisciplinary health care team	21.8	24.5	11.6	33.8
Leading a community group	10.1	15.3	2.0	12.1
None of the above	12.7	14.7	27.4	9.2

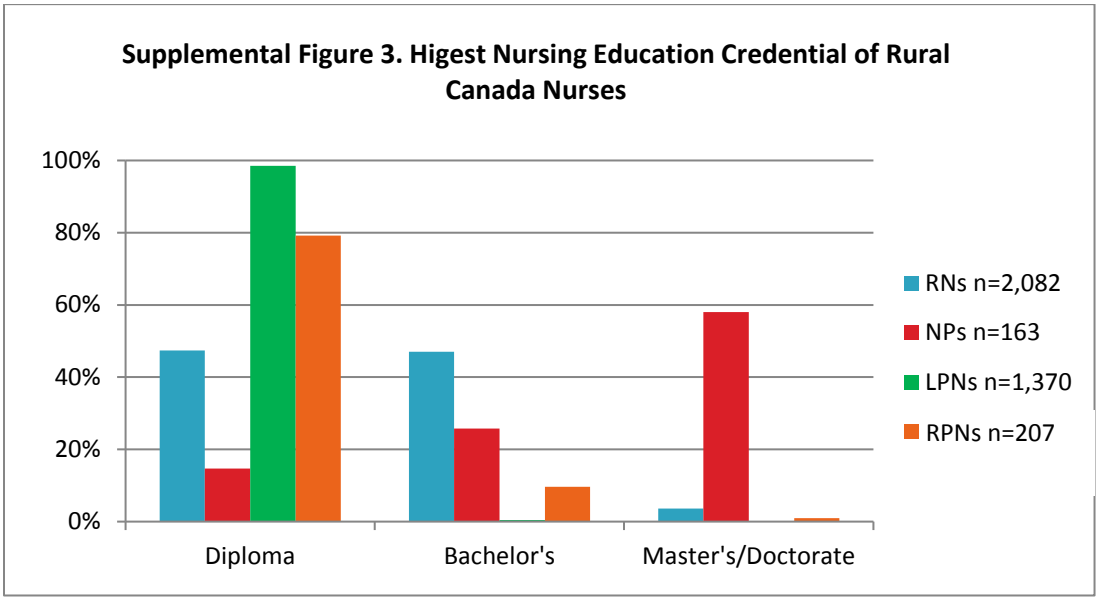
Appendix B. Comparisons: Rural Canada RNs, NPs, LPNs, and RPNs

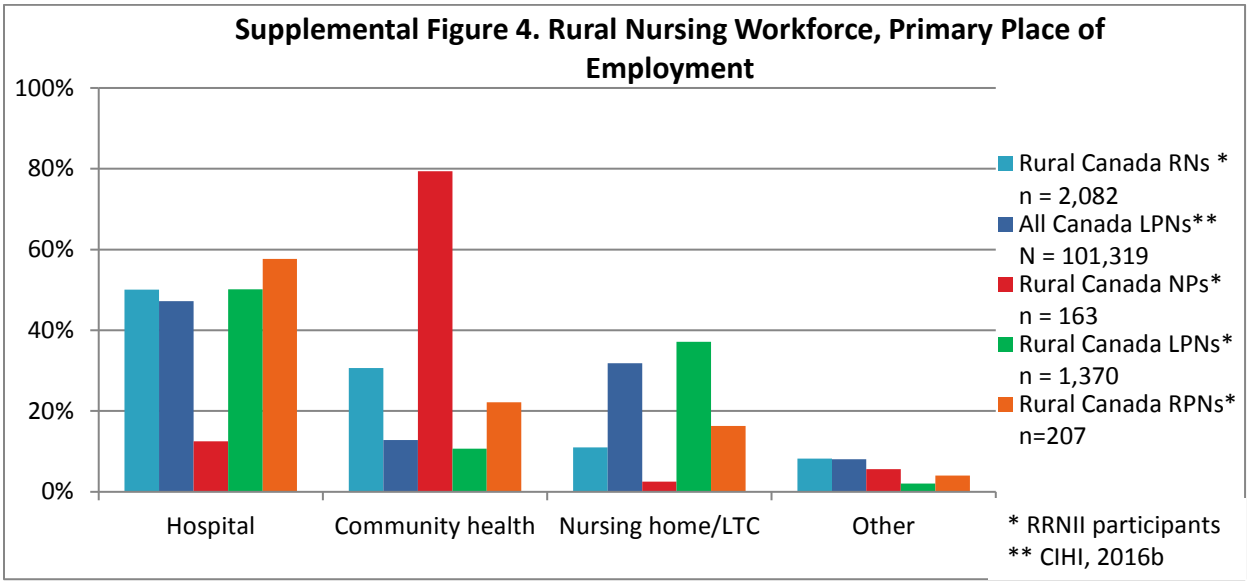
Supplemental Table 1. Age Distribution of Nurses in Rural Canada

		< 25 %	25-34 %	35-44 %	45-54 %	55-64 %	≥ 65 %
RNs	(n = 2,082)	1.1	17.8	19.1	27.2	29.6	5.3
NPs	(n = 163)	1.3	11.5	25.6	36.5	23.1	1.9
LPNs	(n = 1,370)	3.7	17.8	20.4	30.3	25.4	2.4
RPNs	(n = 207)	2.5	11.2	19.3	34.0	26.4	6.6

Supplemental Table 2. Population of Primary Work Community, Nurses in Rural Canada

Community Population	RNs % (n = 2,082)	NPs % (n = 163)	LPNs % (n = 1,370)	RPNs % (n = 207)
≤ 999	14.9	17.4	12.1	10.0
1,000 - 2,499	14.3	19.4	12.8	10.5
2,500 - 4,999	13.2	17.4	14.8	8.0
5,000 - 9,999	25.8	20.6	31.2	26.0
10,000 - 29,999	26.4	22.6	22.9	33.0
≥ 30,000	5.4	3.2	6.2	12.5





Notes:

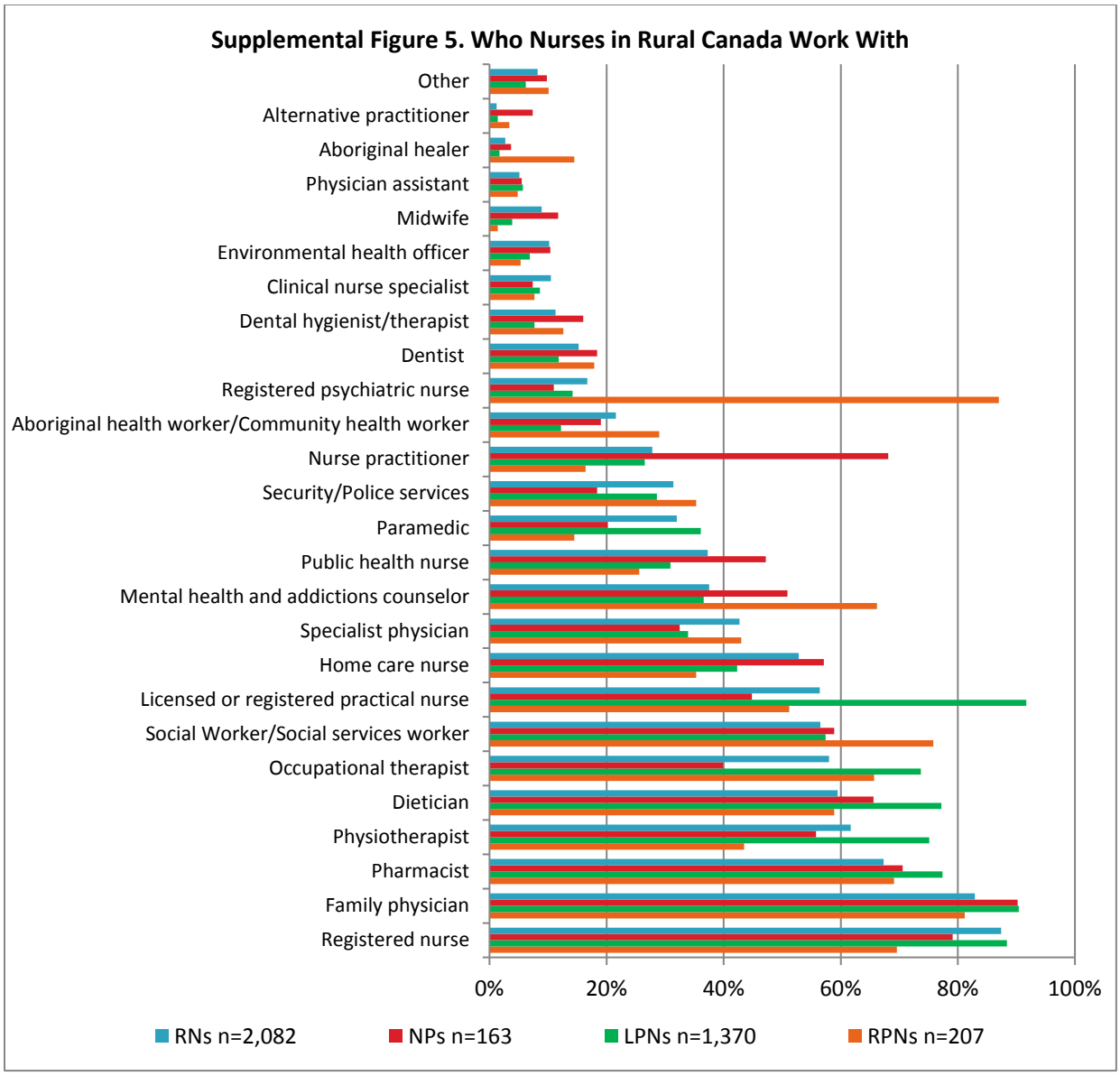
Hospital *includes hospital, mental health centres, rehabilitation/convalescent centres and integrated facilities.*

Community health *includes community health centres, home care agency, nursing station (outpost or clinic), NP led clinic, multidisciplinary primary healthcare clinic and public health department/unit.*

Nursing home/LTC *includes nursing home/long-term care facility.*

Other *place of work includes professional association/government, occupational health, private nursing agency/self-employed, educational institution, physician's office/family practice unit or team and other place of work.*

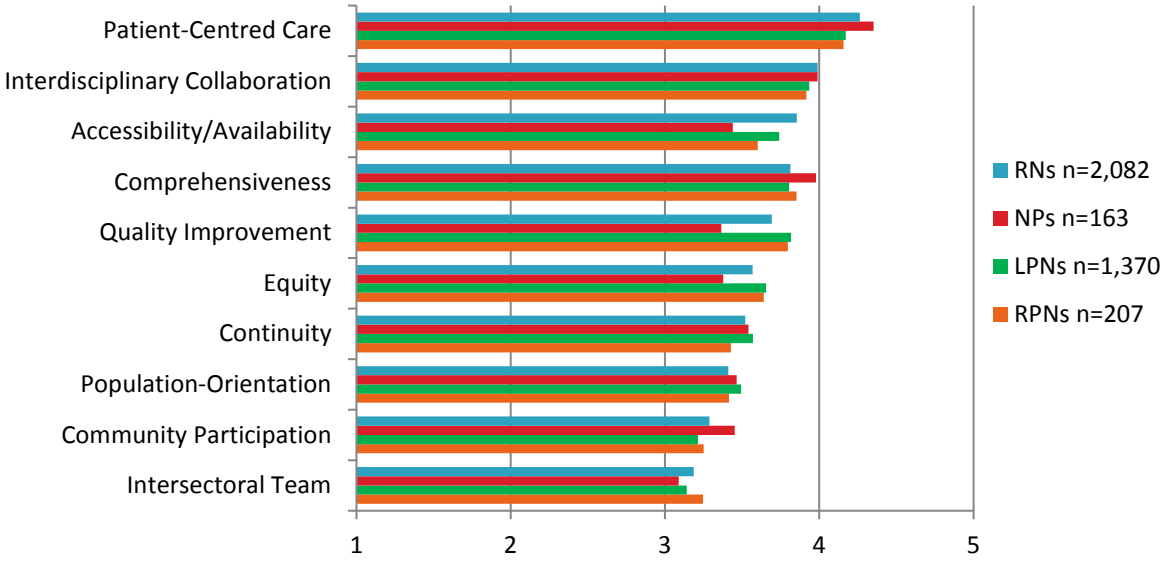
Supplemental Figure 5. Who Nurses in Rural Canada Work With



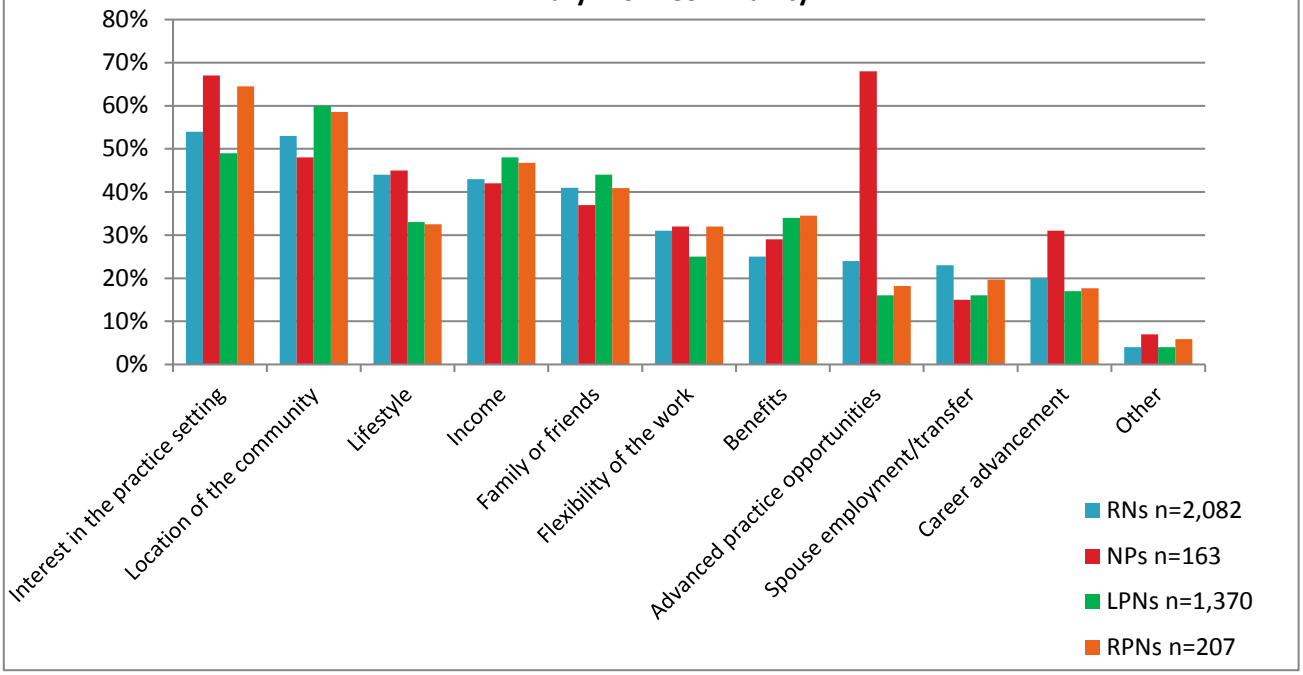
Supplemental Table 5. Who Nurses in Rural Canada Work With

	RNs % (n = 2,082)	NPs % (n = 163)	LPNs % (n = 1,370)	RPNs % (n = 207)
Registered nurse	87.4	79.1	88.4	69.6
Family physician	82.9	90.2	90.4	81.2
Pharmacist	67.3	70.6	77.4	69.1
Physiotherapist	61.7	55.8	75.1	43.5
Dietician	59.5	65.6	77.2	58.9
Occupational therapist	58.0	39.9	73.7	65.7
Social Worker/Social services worker	56.5	58.9	57.4	75.8
Licensed or registered practical nurse	56.4	44.8	91.7	51.2
Home care nurse	52.8	57.1	42.3	35.3
Specialist physician	42.7	32.5	33.9	43.0
Mental health and addictions counselor	37.5	50.9	36.6	66.2
Public health nurse	37.3	47.2	30.9	25.6
Paramedic	32.0	20.2	36.1	14.5
Security/Police services	31.4	18.4	28.6	35.3
Nurse practitioner	27.8	68.1	26.5	16.4
Aboriginal health worker/Community health worker	21.6	19.0	12.2	29.0
Registered psychiatric nurse	16.7	11.0	14.2	87.0
Dentist	15.2	18.4	11.8	17.9
Dental hygienist/therapist	11.3	16.0	7.7	12.6
Clinical nurse specialist	10.5	7.4	8.6	7.7
Environmental health officer	10.2	10.4	6.9	5.3
Midwife	8.9	11.7	3.9	1.4
Physician assistant	5.1	5.5	5.7	4.8
Aboriginal healer	2.7	3.7	1.7	14.5
Alternative practitioner	1.2	7.4	1.4	3.4
Other	8.2	9.8	6.2	10.1

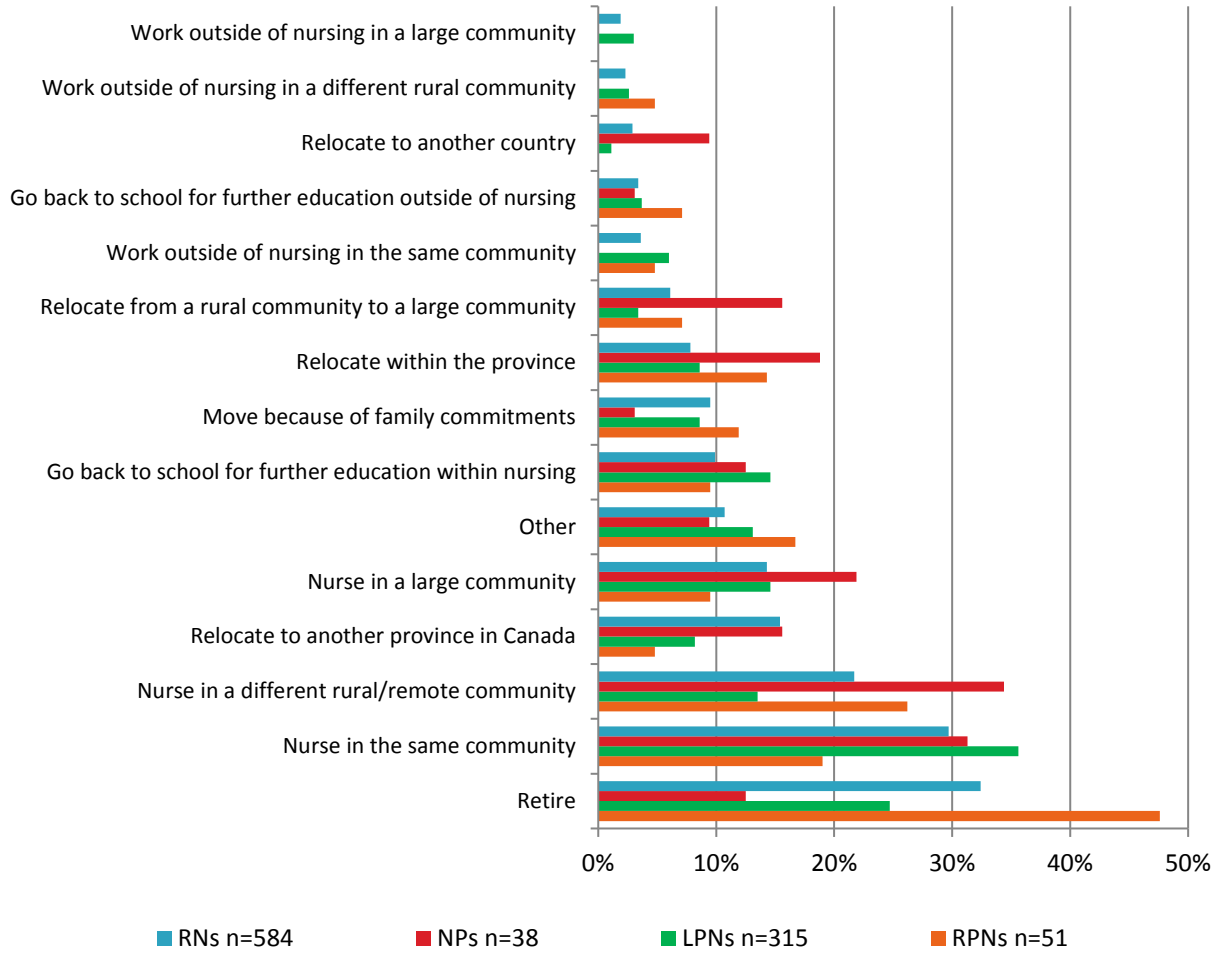
Supplemental Figure 12. Rural Nurses' Perspectives on Primary Health Care in Their Workplace



Supplemental Figure 13. Reasons Why Rural Canada Nurses Came to Work in Their Primary Work Community



Supplemental Figure 14. Future Plans of Rural Canada Nurses who Intended to Leave Within the Next 12 Months



Supplemental Table 14. Future Plans of Rural Canada Nurses who Intended to Leave Within the Next 12 Months

	RNs % (n = 584)	NPs % (n = 38)	LPNs % (n = 315)	RPNs % (n = 51)
Retire	32.4	12.5	24.7	47.6
Nurse in the same community	29.7	31.3	35.6	19.0
Nurse in a different rural/remote community	21.7	34.4	13.5	26.2
Relocate to another province in Canada	15.4	15.6	8.2	4.8
Nurse in a large community	14.3	21.9	14.6	9.5
Other	10.7	9.4	13.1	16.7
Go back to school for further education within nursing	9.9	12.5	14.6	9.5
Move because of family commitments	9.5	3.1	8.6	11.9
Relocate within the province	7.8	18.8	8.6	14.3
Relocate from a rural community to a large community	6.1	15.6	3.4	7.1
Work outside of nursing in the same community	3.6	0.0	6.0	4.8
Go back to school for further education outside of nursing	3.4	3.1	3.7	7.1
Relocate to another country	2.9	9.4	1.1	0.0
Work outside of nursing in a different rural community	2.3	0.0	2.6	4.8
Work outside of nursing in a large community	1.9	0.0	3.0	0.0

[i]

[i] For further comparisons by nurse types and across regions, please view the following article:

MacLeod, L.P. M., Stewart, J, N., Kulig, J.C., Anguish, P., Andrews, ME., Banner, D., Garraway, L., Hanlon, N., Karunanayake, C., Kilpatrick, K., Koren, I., Kosteniuk, J., Martin-Misener, R., Mix, N., Moffitt, P., Olynick, J., Penz, K., Sluggett, L., Van Pelt, L., Wilson, E., & Zimmer, L. (2017). Nurses who work in rural and remote communities in Canada: A national survey. *Human Resources for Health, 15*(34). Retrieved from http://rdcu.be/sOoD