



# **National Community Health Nursing Study:**

## *Comparison of Enablers and Barriers for Nurses Working in the Community*

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# Table of Contents

<b>Main Messages</b> .....	7
<b>Executive Summary</b> .....	8
<b>Recommendations</b> .....	9
<b>Introduction</b> .....	10
<b>Background</b> .....	10
Purpose.....	10
Methods.....	10
<i>Analysis</i> .....	11
<i>Limitations</i> .....	12
<b>Results</b> .....	13
Response Rates.....	13
Demographic Profile of Respondents .....	13
<i>Age and experience</i> .....	13
<i>Education</i> .....	13
<i>Employment status</i> .....	13
<i>Sector and position</i> .....	13
<b>Survey Results</b> .....	14
Professional Confidence .....	14
Team Relationships .....	14
<i>Figure 1. Enablers for Community Health Nurses to Practice Their Competencies</i> .....	15
<i>Table 1. Community Health Nurse Respondents' Perceived Team Relationships</i> .....	15
Work Environment .....	16
Material Resources .....	16
<i>Pay and job security: CHN RNs compared to LPNs</i> .....	16
<i>Regional differences</i> .....	16
<i>Employment status and position</i> .....	16
<i>Travel and equipment support</i> .....	16
Human Resources Policies.....	17
<i>Learning environment</i> .....	17
<i>Policies, procedures and up to date information</i> .....	17
<i>Practice consultant</i> .....	17
<i>Recent government policies</i> .....	17
<i>Workload and safety</i> .....	17
<i>Safe working environment</i> .....	17
Support for Nursing.....	18
<i>Leadership</i> .....	18
<i>Debriefing</i> .....	18
<i>Trust and understanding of nurses</i> .....	18
Employer Approach to Community .....	19
<i>Support to address needs of population</i> .....	19

Community Context.....	19
<i>Community Understanding of CHN Roles</i> .....	19
<b>Discussion</b> .....	<b>20</b>
<i>Team Relationships</i> .....	20
<i>Professional Confidence</i> .....	21
<i>Work Environment</i> .....	22
<i>Community Context</i> .....	23
<b>Conclusion</b> .....	<b>23</b>
<b>References</b> .....	<b>24</b>
<b>Appendix 1. Glossary of Terms</b> .....	<b>28</b>
<b>Appendix 2. Registered Nurses (RNs) Response Rates by Provinces and Territories</b> .....	<b>29</b>
<b>Appendix 3. Licensed Practical Nurses (LPNs) Response Rates by Provinces and Territories</b> .....	<b>30</b>
<b>Appendix 4. Age Profile of CHN Respondents Compared to Age of All Canadian CHNs*</b> .....	<b>31</b>
<b>Appendix 5. CHN Respondents: Years in Nursing</b> .....	<b>31</b>
<b>Appendix 6. CHN Respondents: Years in Current Position</b> .....	<b>32</b>
<b>Appendix 7. CHN Respondents: Education Level Compared to All Canadian CHNs*</b> .....	<b>32</b>
<b>Appendix 8 CHN Respondents: Employment Status Compared to All Canadian CHNs*</b> .....	<b>33</b>
<b>Appendix 9. CHN Respondents: Place of Work Compared to All Canadian CHNs*</b> .....	<b>34</b>
<b>Appendix 10. Canadian Public Health Nurses: Self-Reported Places of Work</b> .....	<b>35</b>
<b>Appendix 11. Canadian Visiting Nurses: Self-Reported Places of Work</b> .....	<b>36</b>

# *Main Messages*

## **Public Policy**

- Although federal, provincial and local policies take into account the social determinants of health, Community Health Nurses (CHNs) report that there are additional opportunities to address health needs related to equity and social justice.
- Community services are relatively well-coordinated, but more community resources would improve health outcomes. Northern and Outpost Nurses especially need better access to supplies to effectively meet community health needs.

## **Learning Resources**

- All CHNs need time/funding/access to learning resources, but Visiting and Outpost Nurses have the greatest need.
- Leadership training with emphasis on effective teamwork could improve the efficacy of health services in Canadian communities.

## **Human Resources Management**

- Heavy workloads may hinder the ability of Coordinators and Case Managers to make optimal decisions about patient care.
- Autonomy to vary the time they spend with clients and modify care plans enables CHNs to provide better services.
- Visiting Nurses (Home Care) suffer from greater job insecurity than CHNs in other sub sectors.

## **Research**

- Common ethics approval and survey distribution processes would enable nursing regulatory bodies to assist researchers in providing more timely results.
- Further research is needed to:
  - Understand the most effective mechanisms to engage people living and working in communities to address social determinants of health.
  - To explore strategies for improving leadership and team functioning in community health.
  - To investigate CHN pay differences and job security across community sub sectors.

## Executive Summary

SARS, 9/11, continuing infectious outbreaks and increased evidence about social determinants of health have heightened the focus of governments and health policy analysts on public health capacity. Similarly, the rising costs associated with hospital and long-term care beds has increased awareness of the need to improve home care, primary healthcare and other community care services.

Effective human resource planning requires service delivery strategies that ensure the community health workforce is used to its full potential. In 2006, 50,577 (16 %) of the 320,248 nurses in Canada were Community Health Nurses (CHNs). However, there is little research about the CHN workforce and how it can contribute to improving health system capacity. This report provides an analysis of CHNs' perceptions regarding enablers and barriers to practice their full scope of competencies (knowledge, skills and attitudes).

The Nursing Health Services Research Unit (NHSRU) CHN Questionnaire<sup>©1</sup> was administered in 2005-2007 to a random sample of Community Health Registered Nurses (RNs) and Licensed Practical Nurses (LPNs) stratified across all provinces and territories. Most CHNs were contacted through their provincial regulatory bodies, but this was not possible for Registered Psychiatric Nurses or for RNs in Prince Edward Island.

The response rate was 57%; 6,667 questionnaires were analyzed. The respondents' demographic profile approximated the Canadian Institute of Health Information (CIHI) profile of the national cohort of CHNs. *Work environment* was found to be the most important enabler to support CHNs to work to the full scope of their competencies. This finding was underscored by the lack of statistically significant differences in responses by age, education, employment status or experience. Respondents revealed strong relationships among CHNs and with most other disciplines. However, there were indications that physician/nurse collaboration could be improved, especially in the public health sub sector.

Although respondents expressed confidence in their own professional abilities, continuously evolving scientific evidence and changing needs in the community require ongoing opportunities for updating skills and knowledge. Almost 20% of respondents did not agree that they received updates on changing government policies. Less than half agreed that they had adequate time/money/access to learning resources. This problem was most pronounced for CHNs in Quebec and for Outpost Nurses.

About three-quarters of the respondents agreed that there are nurses in key leadership positions, and more than 80% felt that employers upheld their professional Standards of Practice. However, employers could become more supportive by providing additional debriefing opportunities and better demonstrate their trust by encouraging the flexibility of CHNs to vary care plans and time spent, based on client need. Employers could also be more supportive of CHNs' efforts to address population health needs.

Canadian communities are the context for CHN practice. Only half of RN CHN respondents agreed that provincially-mandated policy supports them to work effectively. Collectively, organizations within communities must assure timely access to good quality resources for their citizens. If the resources are available, CHNs could ensure that they are well-used by the people who need them. In order to do this, community groups and workers need to understand each other's roles and abilities.

## Recommendations

The following recommendations are intended to enhance enablers and reduce barriers for optimal community health nursing practice outcomes.

■ = Federal and provincial level [macro]

● = Local public health decision makers [meso]

◆ = Managers responsible for public health nursing programs [micro]

□ = Community Health Nurse

‡ = Researchers

1. ■ That provincial nursing regulatory bodies including Registered Psychiatric Nurses continue or establish mechanisms to facilitate members' participation in research.
2. ‡ ● ◆ That researchers, employers and managers undertake collaborative interdisciplinary investigations and training to support effective team functioning in community health settings.
3. ● ◆ □ That employers and managers improve access to evidence and continuing education, and that CHNs take advantage of these opportunities to enhance their competence and professional confidence.
4. ● ◆ That employers provide leadership training to assure managers have skills to maximize CHN effectiveness.  
For example:
  - Offering debriefing sessions
  - Supporting CHN flexibility to meet client and population needs
  - Addressing fair workloads and safe work environments
  - Including CHNs in program planning activities
  - Understanding CHN capabilities as well as RN and LPN role differences
5. ■ ● ◆ That territorial policy makers and employers improve Northern and Outpost CHNs' access to material resources for effectively meeting their clients' needs.
6. ‡ That researchers investigate CHN pay differences and job security across community sub sectors.
7. ‡ That researchers study community health organizations to determine the extent that social determinants of health are addressed and develop methodology to account for differences.
8. ■ ● That federal, provincial and community policy makers develop an effective system of local intersectoral collaboration to support improved service integration and to address the social determinants of health.

## *Introduction*

Effective human resource planning includes designing service delivery so that the workforce can be used to its full potential.<sup>1,2</sup> However, there is little research about the community health workforce and how it can contribute to improving health system capacity. This report provides an analysis of Community Health Nurses' (CHNs) perceptions regarding enablers and barriers to practice their full scope of competencies (knowledge, skills and attitudes).

## *Background*

Numerous reports analyzing health reform have recognized the importance of ensuring that there is adequate capacity to address health needs outside hospitals.<sup>3</sup> SARS, 9/11, threats of infectious outbreaks and increased evidence about social determinants of health have heightened government focus on public health capacity.<sup>4</sup> Butler-Jones, Naylor, Campbell, Kirby and Walker have emphasized issues associated with public health.<sup>5,6,7,8,9</sup> Similarly, reports by Barenak, Deber and Williams, Caplan, and Hollander and Prince demonstrated the increased need for both acute and chronic home healthcare capacity.<sup>10,11,12</sup> Evidence relevant to primary healthcare has also identified human capacity needs.<sup>13,14</sup> In addition, the Ontario Minister of Health recently announced that more resources would be assigned to keep seniors in their homes longer, which will require increased community health nursing capacity.<sup>15</sup>

Community Health Nurse is a broad title used to describe all nurses who work in the community, but practice settings are diverse and CHNs have various titles and responsibilities. In 2006, 50,577 (15%) of the 320,248 nurses registered in Canada were CHNs.<sup>16</sup> The Canadian Nurses Association (CNA) predicts that 60% of nurses will be working in the community by 2020.<sup>17</sup> Strategic planning is necessary to prepare the public and the workforce to effectively manage the challenges associated with the shift to community healthcare.

### **Purpose**

The purpose of this investigation was 1) to compare the enablers and barriers for CHNs to practice the competencies associated with their specialty across geographic jurisdictions and community health sectors, and 2) to recommend strategies to support CHNs to practice the full scope of competencies associated with their specialty. Data were collected from CHNs in every province and territory.

### **Methods**

The Nursing Health Services Research Unit (NHSRU) CHN Questionnaire<sup>©1</sup> was administered in 2005-2007 to a random sample of 13,772 CHNs (10,358 RNs and 3,414 LPNs) stratified by province. All self-identified CHNs (both front line staff and management) who agreed to participate in research on their annual nursing registration forms were eligible to take part in this study. The survey was available in English, French and Inuktitut. A cross-sectional sample was selected from provincial regulatory databases, except Prince Edward Island (PEI), based on an estimated 60% response rate for Ontario, a 50% response rate for the other provinces and a 95% confidence interval. For PEI, relevant employers were asked to distribute the survey because the regulatory body did not have the authority to participate. For Ontario, all Public Health Nurses (PHNs) were

chosen so a more detailed analysis of this group could be achieved, while random sampling for each of the other community sub sectors was performed.<sup>18</sup>

The NHSRU CHN Questionnaire© investigates selected attributes that were identified in previous studies as enablers for CHN practice: professional confidence, team relationships, workplace environment and community context.<sup>1</sup> The tool, first used in Ontario in 2005, was adapted for application across Canada by adjusting terms (e.g., *home care* instead of *Community Care Access Centre*). The questionnaire was tested by experts for content validity, revised and then retested. Questionnaires were mailed using proven methods for maximizing response rate.<sup>19</sup> Respondents were offered the option of returning their completed survey in a self-addressed stamped envelope, faxing it back or responding online using Survey Monkey. Ethics approval was obtained from McMaster University in 2005 (and updated annually to 2009) and from nursing regulatory bodies in each province and territory.

## Analysis

Descriptive statistical analyses provided demographic characteristics of the participants' responses to the questions. The responses were weighted for analysis to compensate for over sampling in Ontario, as well as differences in population sizes and response rates across provinces/territories.

Initial exploratory factor analysis (EFA) of the responses from Ontario CHNs identified 11 factors that were fairly consistent with the themes in the framework used to develop the NHSRU CHN Questionnaire© (e.g., *professional confidence; physician/nurse relationship; nurse/nurse relationship; nurse/other professionals relationship; nurse/client relationship; time/money/access to learning resources; pay and job security; trust nurses; employer protocols, policies and procedure; community approach to social determinants of health; or community resources*<sup>1</sup>).

Confirmatory factor analysis (CFA) was performed on the 32 variables that did not load in the EFA. These variables were grouped together based on the list of themes and sub themes that were originally identified in focus groups and informed the questionnaire development. This analysis yielded three more groupings; two were combined with previously identified factors (*trust nurses and access to information*) and *support to address needs of population* was added to the list of factors.

Following the factor analysis for the Ontario responses, using Cronbach's alpha coefficient, the internal consistency of each factor was verified for the responses from all other provinces and territories. One factor from the RN dataset (*pay and job security*) and two factors from the LPN dataset (*pay and job security and community resources*) had lower than acceptable levels of consistence. The questions that formed these factors were labeled in accordance with the previously identified sub themes, along with the remaining questions that did not load on any factor.

The factors and independent questions were analyzed using one-way ANOVA and Tukey test. If normality assumptions were not met, Kruskal-Wallis and Mann-Whitney nonparametric tests for testing the significance of the differences were used.

## Limitations

Six study limitations have been identified. First, until now, this is the only national application of this questionnaire. Thus there were no historical comparison groups. Secondly, the self-selected respondents excluded both CHNs who had ticked off “no” to participation in research on their provincial registration form and those who did not reply. As a result, this may be a biased sample in which respondents are more positive about their practice than non-respondents. Third, the research team chose the 2.5 value on the Likert Scale as the cut off point for a response to be considered positive, assuming that the responses between 2.5 and 3.0 (out of 5) were equivocal. This may have resulted in lower agreement than would otherwise have been found. Fourth, only one item (#19) on the questionnaire was reversed to a negative, which may have led to a positive bias in responses. Some questionnaire design authors recommend posing some questions in reverse order to avoid the problem of responders developing a pattern of responses, regardless of the questions.<sup>20</sup> Fifth, responses collected in Ontario in 2005 were combined with responses received in late 2006 and early 2007 from all other provinces and territories. Although the time difference of responses is a limitation, the research team concluded that overburdening the Ontario sample in less than two years could cause survey fatigue, which would result in less reliable results and could have been an additional limitation.<sup>21</sup> Lastly, accessing the CHN population was limited by several provincial issues:

- Registered Psychiatric Nurses in British Columbia (BC), Alberta, Saskatchewan and Manitoba who work in the community were not able to participate in the study because their regulatory body refused (unless they were dually registered with the college of nurses)
- The Registered Nurses Association of Prince Edward Island has a policy that they will not facilitate access to their members for research purposes
- LPNs in the Northwest Territories declined participation because their numbers are so small that confidentiality could be broken
- There are no RNs working in Nunavut (L. Savage, personal communication, December 16, 2006)
- In BC, 138 Licensed Graduate Nurses were deemed not eligible for the study because they are not RNs, even though they are grandfathered within the regulatory body to practice as nurses
- LPNs in Manitoba who work as community nurses in private agencies or were self-employed could not be separately identified within their regulatory body’s database and therefore were not surveyed

## Results

### Response Rates

The overall response rate of 56.9% included a response rate of 59.7% (6,180) for RNs and a response rate of 48.6% (1,659) for LPNs. Although 7,839 responded to the questionnaire, 1,172 were not CHNs; leaving 6,667 that could be used for the analysis. The range of response rates across provinces and territories varied from 42.6% to 67% for RNs and from 25% to 63.6% for LPNs (see Appendix 2 and 3 for response rates by provinces and territories).

### Demographic Profile of Respondents

The demographic profile of the respondents approximated the national cohort of CHNs.

#### *Age and Experience*

Registered Nurses and LPNs showed a similar age profile, with 50% and 45% respectively over 50 years of age. Data from CIHI shows 45% of CHNs were 50 years of age or older in 2006.<sup>16</sup> Three percent of RNs and 6.2% of LPNs were less than 30 years of age. Data from CIHI indicates 5.2% of RN CHNs and 9.7% of LPN CHNs were less than 30 years of age (see Appendix 4).<sup>16</sup>

As shown in Appendix 5, over two-thirds of CHNs respondents had more than ten years of nursing experience (84% of RN and 70% of LPN respondents). However, over 70% had only been in their current position for 10 years or less (see Appendix 6).

#### *Education*

In comparison to the national CIHI CHN profile, the educational profile of the CHN respondents closely matched that of all Canadian CHNs.<sup>16</sup> However, LPNs were slightly over represented and RN diploma nurses were slightly under represented. Community Health Nurses with a baccalaureate degree or graduate degree comprised 45% of respondents, compared to 43% of Canadian CHNs in the CIHI database (see Appendix 7).

#### *Employment Status*

As shown in Appendix 8, 64% of RN respondents and 54% of LPN respondents had full-time work, compared to 55% of the RNs and 50% of the LPNs in the national CHN workforce.<sup>16</sup>

#### *Sector and Position*

Appendix 9 shows that CHN respondents came from 16 different community sub sectors. The three work settings most represented by RN respondents were Public Health Unit/Department (34%), Community Health/Health Centre (19%) and Home Care Agency (15%). Community Health Centre likely refers to *Centre Local de Services Communautaires* in Quebec and sites in other provinces that include public health nursing services for young families, school-aged children, adults and seniors (M. Best, personal communication, April 5, 2008).

There was considerable discrepancy among nurses in the community health sub sector. For example, it was not possible to differentiate “Community Health Centre” and “Public Health Unit” as discrete workplaces because these terms are used inconsistently or interchangeably in many parts of Canada. In provinces such as Alberta, BC, Manitoba, Saskatchewan, Yukon and Newfoundland, self-identified PHNs were as likely to say that they work in a Community Health Centre as a Public Health Unit (see Appendix 10). Even in Ontario, PEI and Nova Scotia, where Public Health Departments are more clearly delineated, some self-identified PHNs reported working in Community Health Centres or other places. Most of the others said they worked in Public Health Units. Self-identified Visiting Nurses reported that they worked in Community Health Centres, Home Care Agencies or “Extra-Mural Hospitals” in New Brunswick (see Appendix 11). As a result, the “place of work” categories used in the NHSRU CHN Questionnaire© were not helpful for most of the provincial analyses and “position in nursing” was used as a proxy for the “place of work” sub sector instead.<sup>16</sup>

## *Survey Results*

The authors of the NHSRU CHN questionnaire© identified four theme areas that enable CHNs to practice their full scope of competencies: *professional confidence, team relationships, workplace environment and community context*.<sup>1</sup> As shown in Figure 1, a framework comprising these themes are used to report the results of the survey. Only results showing statistically significant differences and Likert score differences of greater than 0.5 are reported to ensure a clear picture of important findings. No statistically significant differences in responses were found by age, education or experience. However, as discussed below, statistically significant differences were noted for geographic regions, employment status and position.

### **Professional Confidence**

Most CHN respondents (95% RNs and 93% LPNs) reported confidence in their ability to practice autonomously, communicate their decisions about clients to managers and advocate for program changes.

### **Team Relationships**

Both CHN RNs and LPNs perceived their most collaborative relationships were with other nurses, followed by other professionals, physicians and then clients (see Table 1).

Figure 1. Enablers for Community Health Nurses to Practice Their Competencies<sup>1</sup>

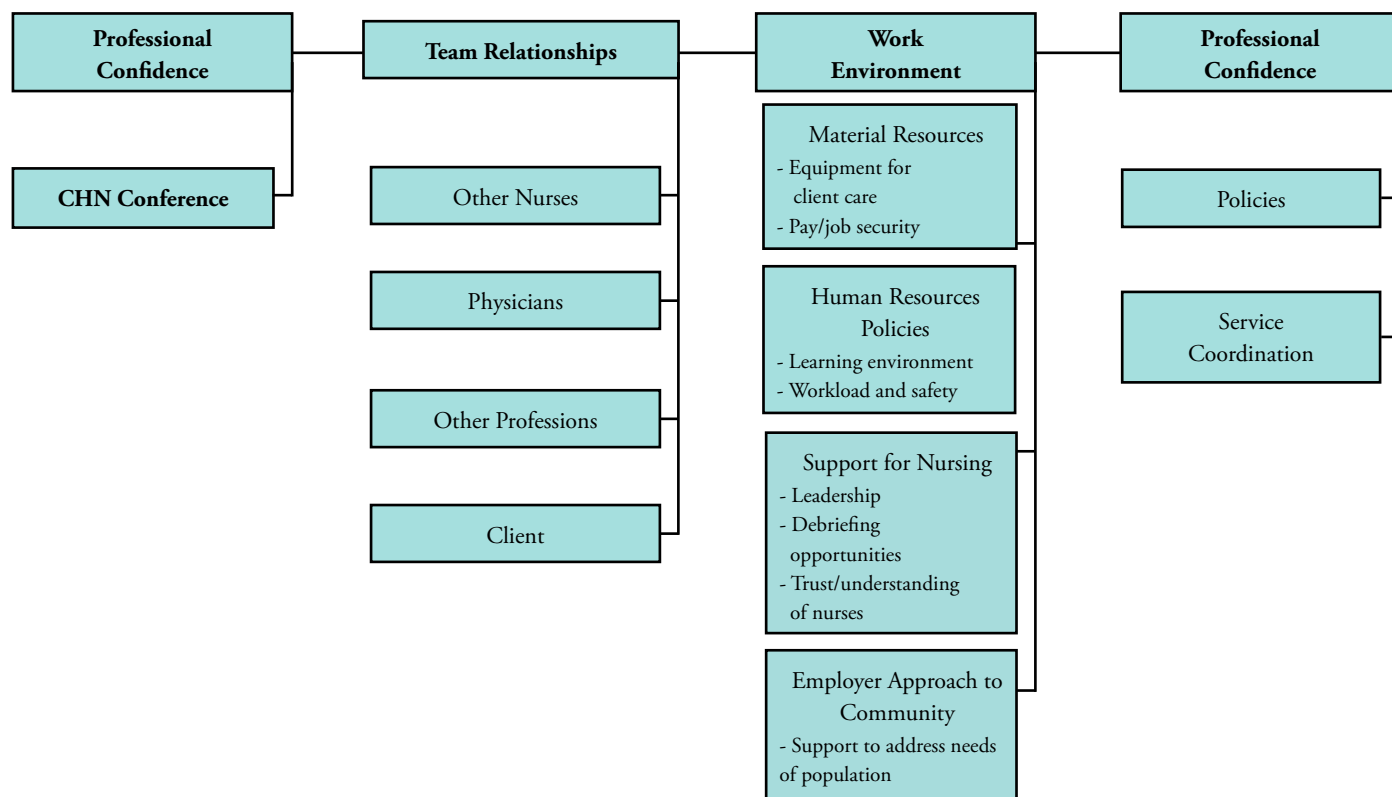


Table 1. CHN Respondents’ Perceived Team Relationships

CHN Conference	Agreement that they have positive relationships >2.5 on Likert scale		Mean and standard deviation (SD) rated on Likert scales from 1 to 5	
	RNs	LPNs	RNs	LPNs
Nurse/Nurse	92%	88%	1.618 (SD = .519)	1.788 (SD = .749)
Nurse/Other Professional	86%	83%	1.857 (SD = .630)	1.923 (SD = .697)
Physician/Nurse	68%	70%	2.358 (SD = .793)	2.311 (SD = .769)
Nurse/Client	53%	66%	2.448 (SD = .602)	2.298 (SD = .599)

Although 92% of RN respondents, compared with 88% of LPN respondents, agreed that they had effective relationships with other nurses, fewer (86% RNs and 83% LPNs) agreed that they have effective relationships with other professionals. Sixty-eight percent of RN and 70% of LPN respondents reported effective relationships with physicians. This factor was measured by the following items in the questionnaire:

- I have a collaborative relationship with the physicians that I work with.
- Physicians accept my professional assessment of clients as the basis for treatment.
- Physicians in my community respect the decisions I make about clients.
- Physicians in my community return my phone calls as promptly as required.

Differences were found by geographic region and position. Community Health Nurses working in the Northwest Territories reported better working relationships with physicians than CHNs in BC, Ontario and PEI did. Registered Nurses in the Yukon also reported more positive relationships with physicians than did nurses working in BC and Ontario. In contrast to nurses in other positions, Outpost RNs (who typically work in the north) reported better relationships with physicians. Compared to CHNs in other positions, nurses in public health reported less positive relationships with physicians. Fifty-three percent of RNs respondents and 66% of LPNs reported strong relationships with clients. The nurse/client relationships were measured in terms of clients' understanding the role of CHNs, working in partnership and trusting CHNs from their agency.

## **Work Environment:**

### **Material Resources**

*Pay and job security: CHN RNs compared to LPNs.* Two items showed statistically significant different responses between RNs and LPNs. Community health nursing RNs agreed more strongly that they were paid fairly for their work than did LPNs. They also reported more job security than LPNs.

*CHN RNs compared to LPNs:* Two items showed statistically significant different responses between RNs and LPNs. Community health nursing RNs agreed more strongly that they were paid fairly for their work than did LPNs, and they reported more job security than LPNs.

*Regional differences:* In Quebec and Newfoundland, CHN RNs perceived they were less fairly paid for their work, compared to CHN RNs in other provinces. Quebec RNs agreed more strongly that they had job security than CHNs in Ontario did. At the time that this survey was distributed in Newfoundland, the nurses were coming to the end of their employment contract (R. Goodyear, personal communication, July 28, 2008). In Quebec, CHNs were responding to this survey about the same time that physicians received a large pay increase, and there was no mention of a pay increase for nurses (M. Lavoie-Tremblay, personal communication, January 18, 2007). Compared to nurses in Manitoba and Saskatchewan, CHN LPNs in Alberta agreed less often that they are paid fairly for their work, but they reported more job security than nurses in Ontario did.

*Employment status and position:* Both full-time CHN RNs and LPNs agreed more strongly that they had job security than did those in casual positions. Visiting RNs less often agreed they had job security than Nurse Practitioners (NPs), PHNs or Chief Nursing Officers did. Similarly, Visiting LPNs less often agreed that they have job security than Coordinators/Case Managers and consultants did.

*Travel and Equipment Support:* Most RN CHNs (87%) agreed they are compensated for job-related travel. A small number (13%) of CHNs indicated their organizations did not supply them with the equipment needed to do their job. Community health nursing RNs working in the north and Outpost Nurses more frequently reported concern about equipment than nurses in other parts of Canada did.

Licensed Practical Nurses in Nova Scotia more often agreed that they are compensated for job-related travel than LPNs in BC and New Brunswick. In Manitoba, LPNs also agreed more often that they are compensated for job-related travel than LPNs in New Brunswick.

## Human Resources Policies:

*Learning environment:* Less than half (45%) of CHN respondents agreed they had adequate time/money/access to learning resources. Compared to other CHN positions, Outpost Nurses reported the least access. Community health nursing RNs working in Quebec reported less access than nurses in Alberta, New Brunswick, Nova Scotia and Ontario. Registered Nurses providing direct client services reported less access than nurses in management roles did.

Licensed Practical Nurses from Quebec agreed less often that they have adequate time/money/access to learning resources than those from Ontario did. Similarly, LPNs with fewer years of experience less often reported access to learning than LPNs with over 40 working years in nursing.

*Policies, procedures and up to date information:* Over a quarter (26%) of CHNs did not agree that they had access to policies, procedures, protocols and up to date information to support client care, employee well-being and potential emergency situations.

*Practice consultant:* Fewer CHNs (12% RNs and 9% LPNs) indicated they did not have access to a manager or practice consultant for discussion of client issues.

*Recent government policies:* Nearly one-fifth of CHNs (18% RNs, 19% LPNs) did not agree that their organizations provided them with access to information about recent government policies that impact their practice; a further 23% RNs and 26% LPNs were unsure. Community Health Nurses in front line staff positions reported less access to government policy information than those in management positions. Licensed Practical Nurses with more than 40 years of experience in nursing agreed more often that their organization provides them with recent government policies and information than did less experienced LPNs. Newfoundland and Ontario RN CHNs reported greater access to these resources than did nurses in Manitoba. Ontario RPNs (i.e., LPNs) more often reported that their organization provides them with this information than nurses in Alberta, Manitoba or Saskatchewan did.

*Workload and safety:* More than half (58%) of CHNs agreed their employer assigns a fair workload. Registered Nurses in Manitoba, Newfoundland and Quebec perceived fair workload assignments less often than nurses in PEI and New Brunswick did. Differences in workload were also noted between some RN positions. For example, Coordinators/Case Managers and Outpost Nurses less often agreed they were assigned fair workloads than did Clinical Resource Nurses/Clinical Educators and Occupational Health Nurses.

*Safe working environment:* Eleven percent of RN CHNs disagreed that their employer provided a safe working environment. Community health nursing RNs who reported unsafe working conditions were more frequently from Quebec and the Northwest Territories and were working as Outpost or Visiting Nurses. Licensed Practical Nurses in PEI more often agreed that their organization provided a safe work environment than LPNs in Manitoba and Quebec did.

## Support for Nursing

*Leadership:* Most (76%) RN CHNs agreed that there are nurses in key leadership positions in their organizations, that their leaders understand nursing practice and that they uphold the Standards of Practice (84%). Community health nursing RNs in management roles more strongly agreed that their leaders understood nursing practice than did nurses in staff positions.

Among LPNs, Visiting Nurses more often agreed that there are nurses in key leadership positions in their organizations than did nurses in the “other” group. However, LPNs in Quebec agreed less often that there were nurses in key leadership positions in their organization than nurses in Ontario, BC and Nova Scotia did.

*Debriefing:* Fifty-eight percent of RN CHNs indicated they are provided debriefing opportunities for discussion with colleagues and management about clinical or program issues. Registered Nurses in Visiting Nurse, Staff Nurse, PHN and Coordinator/Case Manager positions reported fewer opportunities for debriefing than did nurses in other positions. Registered Nurses in Quebec and New Brunswick reported more opportunities for debriefing than did those in the other provinces and territories. Similarly, LPNs in Quebec more often agreed that they are provided with debriefing opportunities than did their counterparts in Alberta, Manitoba, BC, Nova Scotia, New Brunswick, PEI and Saskatchewan. Ontario RPNs (i.e., LPNs) more often agreed that they are provided with debriefing opportunities than did LPN CHNs from Saskatchewan.

*Trust and understanding of nurses:* Sixty-four percent of RNs and 73% of LPN CHNs agreed that their employers and managers demonstrated trust for nurses’ capabilities to carry out their roles, provided recognition for their achievements and welcomed their input into program planning. Chief Nursing Officers/Chief Executive Officers/Directors perceived more trust for nurses than did NPs, Coordinators/Case Managers, Clinical Nurse Specialists, Outpost Nurses, PHNs, Staff Nurses, Visiting Nurses or nurses in the “other” group. Managers/Supervisors/Administrators reported more employer trust than Outpost Nurses perceived.

A majority (74%) of RN respondents agreed they have flexibility to vary the amount of time they spend with clients, but 62% agreed they can vary the nursing care plan based on client needs. Staff Nurses, Outpost Nurses and those in the “other” category indicated less opportunity to schedule their daily work activities than did those in management roles.

However, LPNs reported more variation than RNs across the country. In terms of having flexibility to vary the amount of time spent with clients, for example, LPNs in Alberta and Ontario agreed more often than LPNs in Saskatchewan, and LPNs in BC agreed more often than LPNs in Manitoba or PEI. Similarly, Ontario RPNs (i.e., LPNs) more often perceived encouragement by their employers to schedule their own activities than did LPNs in Manitoba, PEI and Saskatchewan. Quebec LPNs more often agreed that they receive encouragement than nurses in Manitoba and PEI did.

Half (51%) of RN and 66% of LPN CHNs agreed their organizations are clear about the differences in RN and LPN roles. Management RNs report more clarity about RN and LPN roles than other CHNs. However, LPNs in Nova Scotia perceived more clarity about the different roles of RNs and LPNs than did LPNs in Alberta, BC, Manitoba, PEI and Saskatchewan.

## **Employer Approach to Community**

*Support to address needs of population:* Sixty-seven percent of RN CHNs agreed they have support from their employer to address the needs of the population, including access to resources that are culturally appropriate for their clients; support to be an effective advocate for their clients; support to network with community physicians; access to resources to support clients who experience unique barriers to getting health services; support to carry out community development activities; and encouragement to provide culturally-appropriate approaches to service delivery. Importantly, one-third of respondents did not feel they had the necessary support from their employers to address population needs.

## **Community Context**

While 47% of RN CHNs agreed that their communities address social determinants of health, fewer (38%) agreed that they have timely access to good quality community resources for clients. These respondents also indicated that limited resources make it difficult to meet the needs of clients. However, the same percentage agreed that agencies in their community organize services. This may reflect that the available resources are coordinated, but they may not be accessible in a timeframe that is helpful to the client and/or may not be of good quality.

Ontario RPNs (i.e., LPNs) more often agreed that they have timely access to community resources for their clients than LPNs in PEI and Saskatchewan did. Similarly, Nova Scotia LPNs agreed more often that they had these resources than LPNs in Quebec and Saskatchewan did.

## **Community Understanding of CHN Roles**

Most (76%) RN CHNs agreed that professionals from other community agencies respect the judgment of nurses from their agency. However, fewer (52%) agreed they are invited to meetings in the community where they work because of their credibility as a nurse. Licensed Practical Nurses with less than 10 years of experience agreed less often than nurses with over 40 years of experience that professionals from other community agencies respect the judgment of nurses in their agency. However, Ontario LPNs agreed more often than LPNs in Alberta that they are invited to community meetings because of their credibility as nurses.

About half (53%) of RNs agreed that provincially mandated policies regarding their programs help them work effectively with their clients. One-third (35%) neither agreed nor disagreed. It was unclear whether this response reflected that CHNs were not aware of communication regarding provincial policies affecting their programs or whether the policies themselves were not helpful to CHNs in their work with clients.

Most (70%) RN CHNs reported that they are able to work collaboratively with Home Care Services. Occupational Health Nurses and PHNs perceived less collaboration with community agencies than CHNs in other positions, but this may be due to the nature of their work and limited need/opportunity for external collaboration. Licensed Practical Nurse Managers/Supervisors/Administrators perceived more collaboration with the Home Care Services than NPs, PHNs or “other” nurses did, likely because this type of collaboration is an explicit component of these managers’ job assignments.

## Discussion

The issues associated with accessing all CHNs for research purposes are important in the context of building community and public health capacity. The well-being of clients in the community and the nurses who work with them cannot be improved if policy makers do not have access to rigorous research evidence to support policy improvements.

**Recommendation #1: That provincial nursing regulatory bodies continue or establish mechanisms to facilitate members' participation in research, including Registered Psychiatric Nurses.**

Community health nursing practice is guided by competencies defined by regulatory bodies, professional organizations, employers and nursing codes of ethics.<sup>22</sup> Nurses in the community and PHNs have reached consensus about what their roles should be, but policy makers have not determined how to utilize them to their best advantage.<sup>23-26</sup> Progress was made when the Community Health Nurses Association of Canada released the *Canadian Community Health Nursing Standards of Practice* in 2003 and the CNA designated Community Health Nursing as a specialty in 2004.<sup>27</sup> *The Core Competencies for Public Health in Canada Release 1.0* further clarified the essential knowledge, skills and attitudes (competencies) necessary for the practice of public health.<sup>28</sup> However, CHNs will not be able to achieve their full potential until policy provides the supports necessary for them to do their jobs. The theme areas of enablers for CHNs to practice their skills and knowledge (*professional confidence, team relationships, workplace environment and community context*) that comprise the framework for this analysis are consistent with the themes discussed in the literature.<sup>1, 29-31</sup>

The lack of statistically different results across age, education, employment status or experience could be the result of the questionnaire properties being unable to discern differences. However, the differences evident across geographic regions, positions, employment status and registration classifications indicate that the tool can distinguish differences. The evidence suggests that no matter how old they are, how long they have been in the system or what their employment status is, CHNs have the same perceptions about the enablers for practicing their full scope of competencies. The enablers are clearly a function of team relationships, work environment and community policy that addresses social determinants of health. These themes should be considered by community health planners who want to ensure that the potential of CHNs is fully realized.

### Team Relationships

In the CIHI National Study of the Work and Health of Nurses, secondary analysis of data on absenteeism showed that nurses who perceived a lack of respect from colleagues reported an average of 33.4 days absence, compared to 10.7 days for those who reported respect from colleagues.<sup>40</sup> As evidenced by the 14 community sub sectors surveyed in this study, CHNs work in many different roles. Developing an understanding of the various roles of colleagues is essential to coordinate and optimize client services.

In response to this CHN survey, Outpost Nurses reported the strongest relationship with physicians, while PHNs reported the least strong relationships. The conditions in which Outpost Nurses and physicians work (e.g., often separated by thousands of miles) may necessitate developing a greater understanding of each other's roles and increased mutual respect. Physicians and PHNs may have difficulty understanding each other because PHNs generally work with healthy populations and clients who have challenges related to the social determinants of health, while physicians traditionally focus on patients with medical conditions. Although there may be some overlap in clients, there may not be enough opportunity for PHNs and physicians to formally collaborate. Evidence in Ontario revealed that Medical Officers of Health (all of whom are physicians) reported more physician respect for nurses than PHNs perceived from them.<sup>18</sup> In an Alberta pilot project, PHN job satisfaction improved significantly following efforts to establish formal communication processes between PHNs and primary care physicians.<sup>41</sup> The Health Council of Canada's observation that "existing health professions . . . need training opportunities to learn to work effectively together" is relevant to the issue of team relationships revealed in this CHN study.<sup>42</sup>

**Recommendation #2: That researchers, employers and managers undertake collaborative interdisciplinary investigations and training to support effective team functioning in community health settings.**

### **Professional Confidence**

The high scores related to CHN confidence may reflect overconfidence, as shown in some studies of healthcare professionals.<sup>32</sup> However, other authors have identified confidence as a critical attribute of collaborative practice and defined self-confidence as "the feeling that one knows how to do something and has the power to make things happen."<sup>1, 33</sup> Research has shown education can raise CHNs' confidence in their competency and knowledge.<sup>34</sup> Kerfoot emphasized, "Organizations that have an infrastructure of confidence achieve excellence in outcomes that demonstrate resilience in the face of many adversities."<sup>35(p. 154)</sup> As a knowledge profession, it is imperative that CHNs have ongoing access to up to date information. The recent advances in technology make educational offerings much more accessible than in the past. Fortunately, organizations such as the Registered Nurses Association of Ontario, the National Collaborating Centres for Public Health, the Public Health Agency of Canada and the CNA offer very useful opportunities to support CHN professional confidence.<sup>36,37,38,39</sup>

Community Health Nurses' perceptions of somewhat less positive relationships with clients may reflect a lack of public understanding of the various CHN roles and the need for governments to explicitly clarify the mandates of community health and its various sub sectors. Alternately, these results may reflect the complexity of engaging clients in a relationship in which the ultimate goal is to enable them (individuals, families, groups or communities) to take responsibility for their health. Limited time often becomes a barrier to building the collaborative relationships that are fundamental to effectively working together. Relationships between nurses and clients could be improved by providing information to clients and the public about their rights (e.g., equity) in a primary healthcare system and the role of CHNs in health promotion and preservation.

**Recommendation #3: That employers and professional organizations improve access to evidence and continuing education, and that CHNs take advantage of these opportunities to enhance their competence and professional confidence.**

### **Work Environment**

Prospects exist to take better advantage of CHN resources, and improved CHN work environment could enhance the services that CHNs are able to provide. Work environments could be improved by ensuring fair pay across jurisdictions; developing role clarity for RNs and LPNs; providing adequate time/money/access to learning resources and reflective practice (debriefing) opportunities; and clearly defining CHN functions to include community development and activities that address social determinants of health and population health needs. Role clarity enables both RNs and LPNs to work to their full scope of competencies and delegate safely. Engaging staff in discussions about RN and LPN roles and supporting them to work to their full scope of competency could improve client services.

Low suggests creating “healthy workplaces . . . to fuel a brain-based economy and demand for quality of life.”<sup>43</sup> Duxbury recommended strategies for reducing work overload, including providing employees with a greater sense of control over their hours and work schedules; offering paid time off to attend job-related training, courses and conferences; paid personal days; and measuring performance, not hours.<sup>44</sup> It is likely that the RN CHN respondents who reported lack of authority to customize care to meet client needs feel disempowered.

The strategy of debriefing provides timely supportive learning opportunities using staff/client experiences in discussion with colleagues and/or management. Debriefing allows nurses to engage in reflective practice, a requirement for professional continuing competence in all provinces and territories.

Although safety has received much attention in acute healthcare over the past few years and is standard practice in other industries (e.g., airline), community health sectors are only beginning to identify safety issues and implement preventative measures. For example, sharp disposal containers that cannot spill used needles if overturned in a vehicle; protocols for nurses who may encounter dangerous situations in a client home; and defensive driving courses for nurses who are on the road, regardless of weather. Lack of access to clinical resources for consultation on complex issues may also result in less than optimal safety for clients and/or staff.

**Recommendation #4: That employers provide leadership training to assure managers have skills to maximize CHN effectiveness. For example:**

- **Offering debriefing sessions**
- **Supporting CHN flexibility to meet client and population needs**
- **Addressing fair workloads and safe work environments**
- **Including CHNs in program planning activities**
- **Understanding CHN capabilities as well as RN and LPN role differences**

**Recommendation #5: That territorial policy makers and employers improve northern and outpost CHNs access to material resources for effectively meeting their clients’ needs.**

Although there were some different perceptions among provinces about fair pay and job security, it was beyond the scope of this study to compare CHN wages. It may be that some CHNs do not receive pay equity with their peers in other healthcare settings. There may be additional contextual factors, as was revealed for one province where other professions seemed to be getting pay increases without any attention being paid to nurses. Further

research is required to determine if there are actually wage differences or if there are other issues affecting perception of equitable pay practices.

**Recommendation # 6: That researchers investigate CHN pay differences and job security across community sub sectors.**

Further research is required to determine why some health authorities explicitly address population health needs, encourage advocacy for their clients, network with community physicians and get involved in community development activities. There is extensive literature to support activities that address social determinants of health.<sup>5</sup>

**Recommendation # 7: That researchers study community health organizations to determine the extent that social determinants of health are addressed and develop methodology to account for differences.**

### **Community Context**

Development of good quality community services to address issues of poverty, housing and immigration would enable CHNs to more effectively work to their full competence. Intersectoral collaboration and the high regard that nurses receive from the public could be leveraged to support improved service integration and a system of local networks to address the social determinants of health.<sup>45</sup>

Although there was a high response rate to this survey, many nurses working in the community do not identify with the umbrella title “Community Health Nurse.” Failure to recognize that they are part of a larger community group that faces similar issues limits their ability to work collectively for practice improvements, to share knowledge, to collaborate on relevant research and advocate for shared clients.

**Recommendation # 8: That federal, provincial and community policy makers develop a system of local intersectoral collaboration to support improved service integration and to address the social determinants of health.**

## *Conclusion*

This analysis of the enablers and barriers for the CHN workforce across geographic regions and positions offers insights to enhance the opportunities for CHNs to function to their full potential. It is notable that age, education level and years of experience did not influence responses, but responses varied with workplaces. Decision makers at federal, provincial/territorial and local levels have opportunities to address CHN learning needs relevant to professional and interdisciplinary practice, assure equitable human resources policies across provinces and territories, support workplace and client safety policies and promote public awareness about community health sector mandates and CHN roles. Careful attention to the factors that enable CHNs to practice their full scope of competencies will strengthen recruitment and retention and improve the ability of available CHNs to enhance health outcomes in Canadian communities.

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## Appendix 1. Glossary of Terms

- *Community Health Nurse (CHN)*: Broad title describing nurses who work in the community. The term applies to nurses who work outside healthcare institutions such as hospitals and long-term care facilities.
- *Competencies*: Skills knowledge and attitudes necessary for CHN practice.
- *Home Care*: Individual nursing services offered outside hospitals or long-term care facilities, usually in the home.
- *Licensed Practical Nurse (LPN)*: Regulated healthcare professional who works in partnership with other members of the healthcare team to provide nursing services and has met the education requirements of an LPN and is registered with the regulatory college in his/her province.
- *Nursing/Staffing Agency*: For profit or not for profit agencies that provide nursing services or directly provide services to clients such as home care.
- *Other CHN*: CHNs who reported working in a variety of positions (e.g., breast feeding consultants, school nurse, diabetes nurse) but represented such small numbers that they would be individually recognized if reported separately.
- *Public Health Nurse (PHN)*: University prepared registered nurses in the sub set of community nursing assigned to public health programs. They have at least one academic year in public health nursing or a nursing degree that includes public health education. They are assigned to activities that focus on population health, including prevention and health promotion.
- *Registered Nurse (RN)*: Professional that has met the education requirements of an RN and is registered with the regulatory body in his/her province.
- *Registered Practical Nurse (RPN)*: Licensed Practical Nurses are called Registered Practical Nurses in Ontario. Throughout this paper, the term Licensed Practical Nurse (LPN) is used to represent both Licensed Practical Nurses and Registered Practical Nurses.
- *Visiting Nurses*: CHNs who provide home care services.

## Appendix 2. Registered Nurses (RNs) Response Rates by Provinces and Territories

PROVINCE	# Eligible CHNs (who agreed to participate in research) (A)	Sample selection (estimated 50% response, 95% CI) (B)	# Responded (C)	% Response from the sample (D)	Final Weight**
New Brunswick	600*	468	245	52.4	2.4
Newfoundland	524	444	257	57.9	2.0
Nova Scotia	1131	574	326	56.8	3.5
Manitoba	1809	634	379	59.8	4.8
Saskatchewan	1224	584	372	63.7	3.3
Yukon	112	112	75	67	1.5
British Columbia	1432	606	334	55	4.3
Prince Edward Island	156	156	101	64.7	1.5
Quebec	3538	692	407	58.8	8.7
Alberta	3188	686	446	65	7.1
Northwest Territories and Nunavut	467	467	199	42.6	2.3
Ontario***	11657	4935	3039	61.5	3.8
Total	25838	10358	6180	59.7	

\* Estimate based on CIHI information.

\*\* Final weight = # eligible RN CHNs who agreed to participate in research/ # CHNs who responded  
(Column A/Column C)

\*\*\* All eligible Registered nurses working in Public Health in Ontario were surveyed (i.e. those who consented to participate in research).

### *Appendix 3. Licensed Practical Nurses (LPNs) Response Rates by Provinces and Territories*

<b>PROVINCE</b>	<b># Eligible CHNs (who agreed to participate in research) (A)</b>	<b>Sample selection (estimated 50% response, 95% CI) (B)</b>	<b># Responded (C)</b>	<b>% Response from the sample (D)</b>	<b>Final Weight**</b>
New Brunswick	180	180	89	49.4	2.0
Newfoundland	8	8	2	25.0	4.0
Nova Scotia	422	402	167	41.5	2.5
Manitoba	338	338	215	63.6	1.6
Saskatchewan	213	213	111	52.1	1.9
Yukon	8	8	2	25.0	4.0
Alberta	940	546	280	51.3	3.4
Prince Edward Island	88	88	47	53.4	1.9
Quebec	619	462	230	49.8	2.7
British Columbia	195	195	123	63.1	1.6
Ontario (RPNs)**	2300	974	393	40.3	5.9
<b>Total</b>	<b>5311</b>	<b>3414</b>	<b>1659</b>	<b>48.6</b>	

\* Final weight = # eligible LPN CHNs who agreed to participate in research/ # CHNs who responded (Column A/column C)

\*\* All eligible Registered Practical Nurses working in Public Health in Ontario were surveyed (i.e. those working in Public Health who consented to participate in research).

## Appendix 4. Age Profile of CHN Respondents Compared to Age of All Canadian CHNs\*

Age	Survey respondents		Canada*	
	RNs #(%)	LPNs #(%)	RNs #(%)	LPNs #(%)
21-29	146 (3.0)	76 (6.2)	2,317 (5.2)	622 (9.7)
30-39	882 (17.9)	239 (19.6)	8,894 (20.2)	1,395 (21.8)
40-49	1464 (29.6)	351 (28.8)	13,099 (29.7)	1,926 (30.1)
50-59	1847 (37.4)	431 (35.4)	14,939 (33.8)	1,905 (29.8)
>=60	600 (12.1)	121 (9.9)	4,909 (11.1)	550 (8.6)
Total	4,939 (100.0)	1,218 (100.0)	44,158 (100.0)	6,398 (100.0)

\* Source CIHI Nursing databases 2006

## Appendix 5. CHN Respondents: Years in Nursing

How many years have you been nursing in total?	Survey respondents	
	RNs #(%)	LPNs #(%)
1-10	858 (16.1)	399 (30.3)
11-20	1,380 (26.0)	302 (22.9)
21-30	1,731 (32.6)	350 (26.6)
31-40	1,208 (22.7)	241 (18.3)
>40	137 (2.6)	24 (1.9)
Total	5,314 (100.0)	1,316 (100.0)

## Appendix 6. CHN Respondents: Years in Current Position

How many years have you been nursing in the current position?	Survey respondents (RNs & LPNs)
	# (%)
1-10	4,639 (70.2)
11-20	1,394 (21.1)
21-30	506 (7.7)
31-40	62 (0.9)
>40	3 (0.1)
Total	6,604 (100.0)

## Appendix 7. CHN Respondents: Education Level Compared to All Canadian CHNs\*

Level of Education in nursing?	Survey Respondents	Canada*
	# (%)	# (%)
LPN	1,326 (20.0)	6,398 (12.7)
RN Diploma	2,101 (31.8)	22,532 (44.6)
Baccalaureate	2,744 (41.5)	20,550 (40.7)
Registered Psychiatric Nurses	20 (0.3)	NA
RN(Extended class)/ Nurse Practitioner	205 (3.1)	NA
Graduate	218 (3.3)	1,073 (2.0)
Total	6,614 (100.0)	50,553 (100.0)

\* Source CIHI Nursing databases 2006

## *Appendix 8 CHN Respondents: Employment Status Compared to All Canadian CHNs\**

<b>I am employed</b>	<b>Survey Respondents</b>		<b>Canada*</b>	
	<b>RNs #(%)</b>	<b>LPNs #(%)</b>	<b>RNs #(%)</b>	<b>LPNs #(%)</b>
Full-time	3,360 (64.1)	697 (54.3)	24,054 (55.3)	3,188 (50.2)
Part-time	1,434 (27.4)	485 (37.8)	13,696 (31.5)	2,088 (32.9)
Casual	449 (8.5)	102 (7.9)	5,738 (13.2)	1,072 (16.9)

\* Source CIHI Nursing databases 2006

## Appendix 9. CHN Respondents: Place of Work Compared to All Canadian CHNs\*

Place of Work	Survey Respondents		Canada*	
	RNs #(%)	LPNs #(%)	RNs #(%)	LPNs #(%)
Mental Health Centre	253 (4.8)	53 (4.2)	NA**	NA**
Community Health/Health Centre	997 (19.1)	237 (18.7)	21,284 (48.2)	1,877 (29.3)
Home Care Agency	807 (15.4)	307 (24.2)	7,464 (16.9)	2194 (34.3)
Public Health Unit/Department***	1,756 (33.6)	55 (4.3)	4,692 (10.6)	NA
Private Nursing Agency	62 (1.2)	54 (4.3)	320 (0.7)	77 (1.2)
Visiting Nursing Agency	278 (5.3)	135 (10.6)	NA**	NA**
Nursing Station (outpost or clinic)	112 (2.1)	14 (1.1)	1,037 (2.4)	40 (0.6)
Physician's Office/Family Practice Unit	267 (5.1)	238 (18.7)	5,038 (11.4)	1,744 (27.3)
Business/Industry/Occupational Health	171 (3.3)	28 (2.2)	2,451 (5.6)	254 (4.0)
Educational Institution	43 (0.8)	6 (0.5)	196 (0.4)	13 (0.2)
Association/Government	89 (1.7)	9 (0.7)	681 (1.5)	13 (0.2)
Self-employed/Independent Practice	30 (0.6)	25 (2.0)	325 (0.7)	105 (1.6)
Extra-Mural Program	83 (1.6)	1 (0.1)	NA**	NA**
Parish Nursing	3 (0.1)	0	NA**	NA**
Indians, Aboriginals, First Nations and Inuit Services	96 (1.8)	18 (1.4)	NA**	NA**
Other community	180 (3.5)	90 (7.0)	671 (1.5)	81 (1.3)
Total	5,227 (100.0)	1,270 (100.0)	44,159 (100.0)	6,398 (100.0)

\* Source CIHI nursing databases 2006.

\*\* It is not possible to identify Mental Health Nurses, Visiting Nurses, Extra-Mural Program, Parish and Indians, Aboriginals, First Nations and Inuit Services nurses working in community using the CIHI nursing database.

\*\*\* All eligible RNs working in Public Health in Ontario were surveyed (i.e., those who consented to participate in research).

# Appendix 10. Canadian Public Health Nurses: Self-Reported Places of Work

PHN by Province	Canadian Public Health Nurses' Places of Work													TOTAL	
	Mental Health Centre	Community Health Centre	Home Care Agency	Public Health Unit/Department	Private Nursing Agency	Visiting Nursing Agency	Physician's Office/Family Practice Unit	Educ. Institution	Association/Government	Self-employed/Independent Practice	Extra-Mural Program	Indians, aboriginals, first nations and inuit services	Other		Missing
ON	3	12	0	1053	0	0	0	0	1	0	0	5	0	5	1079
AB	0	41	1	41	1	1	0	0	0	0	0	2	1	2	90
BC	0	32	0	72	0	0	0	0	0	0	0	7	0	1	112
MB	0	18	0	50	0	0	0	0	0	0	0	2	1	0	71
QC	0	27	1	2	0	0	0	0	0	1	1	0	1	1	34
SK	0	26	1	61	0	0	1	0	0	0	0	4	1	2	96
PEI	0	1	0	29	0	0	0	0	0	0	0	0	0	1	31
YT	0	10	0	1	0	0	0	0	0	0	0	1	0	0	12
NB	1	1	0	31	0	0	0	1	0	0	0	0	2	0	36
NF	0	38	0	18	0	0	0	1	1	0	0	0	1	3	62
NS	0	2	0	37	0	0	0	0	0	0	0	2	0	0	41
NWT&NU	0	2	0	14	0	0	1	0	0	0	0	0	0	0	17
TOTAL	4	210	3	1409	1	1	2	2	2	1	1	23	7	15	1681

# Appendix 11. Canadian Visiting Nurses: Self-Reported Places of Work

Visiting Nurses by Province	Canadian Public Health Nurses' Places of Work										Total		
	Mental Health Centre	CH/HC	Home Care Agency	Public Health Unit/ Department	Private Nursing Agency	Visiting Nursing Agency	Association/ Government	Self-employed	Extra-Mural Program	Indian Reserve employed		Other	Missing
AB	0	1	2	0	1	0	0	0	0	0	1	0	5
BC	0	18	9	0	0	1	0	0	0	0	1	1	30
MB	0	10	41	2	0	5	1	0	0	0	2	1	62
NB	1	0	4	0	0	2	0	0	18	0	0	0	25
NF	0	6	0	1	1	0	0	0	0	0	0	0	8
NWT& NU	0	2	4	0	0	0	0	0	0	0	0	0	6
NS	0	2	3	0	2	18	0	3	0	0	0	1	29
ON	11	7	1	1	9	167	2	0	0	0	12	1	211
PEI	0	1	13	0	0	0	0	0	0	0	0	0	14
QC	1	7	36	0	0	0	0	0	0	0	0	2	46
SK	0	2	21	0	0	2	0	0	0	1	0	0	26
YT	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	13	56	134	4	13	195	3	3	18	1	16	6	462



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