



# Nursing Practice In Rural and Remote Québec: An Analysis of CIHI's Nursing Database

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## Highlights

- In the period between 2003 and 2010, the regulated nursing workforce in Québec grew by 12.0%, reaching a total of 86,641 regulated nurses. The greatest increase in the regulated nursing workforce during this time was in LPNs (36.5%).
- In 2010, 11.7% of the regulated nursing workforce in Québec was located in rural areas of the province where 19.6% of the population lived.
- The nurse-to-population ratio in 2010 was higher in urban than in rural areas for all nurse types.
- Fewer rural than urban RNs worked full-time. In 2010, rural LPNs had the highest proportion holding casual positions.
- Urban RNs in Québec had higher levels of education than rural RNs.
- In 2010, the proportion of rural nurses working in primary healthcare settings was 16%. Rural NPs were the nurse type with the largest proportion working in primary healthcare settings.
- Although the majority of nurses educated in Québec stay in Québec, in 2010, 4% of RNs and 6% of NPs received their initial education elsewhere.

## Introduction

People who live in rural and remote parts of Canada (including the North) tend to have more health challenges than people living in urban areas. Rural and remote communities also experience limited numbers and chronic shortages of health care workers, including nurses.

In order to keep improving health services and support nurses in rural and remote communities, planners and policy makers need up-to-date information. *Nursing Practice in Rural and Remote Canada II* provides some of that information.

*Nursing Practice in Rural and Remote Canada II* is a study conducted in partnership with planners and policy makers who will make sure that the findings can be used to improve nursing services and access to care in rural and remote Canada.

A key activity of the *Nursing Practice in Rural and Remote Canada II* study was the analysis of the Canadian Institute for Health Information's (CIHI) Nursing Database (NDB). This analysis was undertaken in order to identify key characteristics of the regulated nursing workforce in rural and remote Canada, as well as changes in the workforce over the last decade.

- Data for the years 2003 and 2010 were analyzed.
- Data for registered nurses (RNs), nurse practitioners (NPs), and licensed practical nurses (LPNs) were included.

This document reports key findings from the NDB analysis for Québec (QC). It provides an overview of the regulated nursing workforce in Québec, with a special focus on rural and remote locations.

## Definition of Rural

We use the Statistics Canada definition of Rural and Small Town Canada (du Plessis et al., 2001, p. 6). Rural refers to communities with a core population of less than 10,000 people, where less than 50% of the population commutes to larger urban centres for work. This Statistics Canada definition of rural includes northern communities, as well as remote areas with little or no metropolitan influence as measured, in a labour market context, by the size of commuting flows to any larger urban centre.

According to the 2011 Census, Québec had a population of 7,903,095. As of 2011, the rural population was 1,548,293, which accounted for 19.6% of the total, and represented an increase of 3.4% since 2006. Table 1 lists population by health region.

Table 1. Population by health region, 2011, QC

Health Region	Population
Bas-Saint-Laurent	200,462
Saguenay – Lac-St-Jean	273,461
Capitale-Nationale	701,204
Mauricie et Centre-du-Québec	495,849
Estrie	312,150
Montréal	1,958,257
Outaouais	368,181
Abitibi-Témiscamingue	146,419
Côte-Nord	95,802
Nord-du-Québec	15,809
Gaspésie – Îles-de-la-Madeleine	93,130
Chaudière-Appalaches	406,401
Laval	403,744
Lanaudière	469,916
Laurentides	555,614
Montérégie	1,456,743
Nunavik	1,1498
Terres-Cries-de-la-Baie-James	15,023

Source: CIHI. (2013). *Regulated Nurses: Canadian Trends, 2007 to 2011*. Ottawa, ON: CIHI.

## Nursing Database Analysis: Findings

### 1. Nursing Workforce Numbers in Québec

In the period between 2003 and 2010, Québec's overall regulated nursing workforce grew from 77,325 to 86,641, which represented a 12.0% increase. When this increase was examined in terms of nurse type, we found that the total number of RNs increased from 62,494 to 66,333 (up 6.1%), and the total number of LPNs increased from 14,831 to 20,244 (up 36.5%). No NP data were available for 2003, but in 2010, there were 64 NPs in Québec.

The changes in the regulated nursing workforce can also be examined in terms of urban and rural comparisons; however, no urban/rural allocation was made for RNs in the 2003 NDB. In rural locations, the number of LPNs decreased from 3,282 to 3,039 (down 7.4%). In contrast, the number of LPNs in urban areas increased from 11,536 to 17,205 (up 49.1%).

Of the total regulated nursing workforce in Québec in 2010, 10.6% of RNs, 15.0% of LPNs, and 10.9% of NPs worked in rural communities. When we considered the rural regulated nursing workforce with respect to the rural population, we found that 11.7% of Québec nurses served 19.6% of Québec residents. The situation in urban locations was reversed; here we found that 88.3% of the regulated nursing workforce served 80.4% of the population.

## 2. Nurse-to-Population Ratios

Nurse-to-population ratios represent the number of nurses per 100,000 population. In rural Québec, the nurse-to-population ratio for RNs was lower than in urban locations in 2010 (455.7 compared to 932.8). In 2003, the nurse-to-population ratio for LPNs was higher in rural than in urban Québec; however, this trend was reversed by 2010. Table 2 illustrates the increase in nurse-to-population ratios for RNs and LPNs. The nurse-to-population ratios for LPNs increased in urban areas, and decreased in rural areas.

Table 2. Percentage (%) changes in 2003-2010 nurse-to-population ratios, QC and Canada

Jurisdiction	RNs		LPNs	
	Urban	Rural	Urban	Rural
QC	††	††	36.6	-7.8
Canada	††	††	20.7	6.8

Note: †† - no urban/rural allocations of RNs were available for RNs in Quebec in 2003. Data were suppressed for the territories due to small cell sizes.

## 3. Demographics

### Age:

Table 3 provides information about the average ages of RNs and LPNs for 2003 and 2010. The average age of RNs in 2010 was slightly higher in rural than urban locations. While the average age of LPNs in 2003 was slightly higher in urban than rural location, by 2010 this trend had reversed. The average ages of LPNs working in both urban and rural locations were decreasing.

Table 3. Average age (in years) of the regulated nursing workforce, 2003-2010, QC and Canada

Jurisdiction	RNs				LPNs			
	Urban		Rural		Urban		Rural	
	2003	2010	2003	2010	2003	2010	2003	2010
QC	††	43.3	††	44.5	44.7	41.4	43.4	42.7
Canada	††	†††	††	†††	44.4	42.8	44.6	44.8

Note: †† no urban/rural allocation was made of 2003 Quebec NDB records for RNs. ††† data to compute average ages were not submitted by Manitoba for the 2010 NDB data year.

### Gender:

The proportions of males in the regulated nursing workforce remained low (<8%) for all nurse types in both rural and urban locations. In 2010, the proportion of male regulated nurses working in rural Québec was the same for RNs, and higher for NPs and LPNs compared to urban areas. The proportions of male LPNs in both urban and rural locations changed very little between 2003 and 2010.

In rural Québec, NPs were the nurse types with the largest proportion of males. In 2010, 14.3% of NPs in rural Québec were male compared to 9.6% of RNs and 8.3% of LPNs (see Figure 1). By contrast, in urban Québec, RNs were the nurse type with the largest proportion of males; however, there was not a great deal of difference when compared to NPs and LPNs (see Figure 2).

Figure 1. Proportion male nurses, rural QC

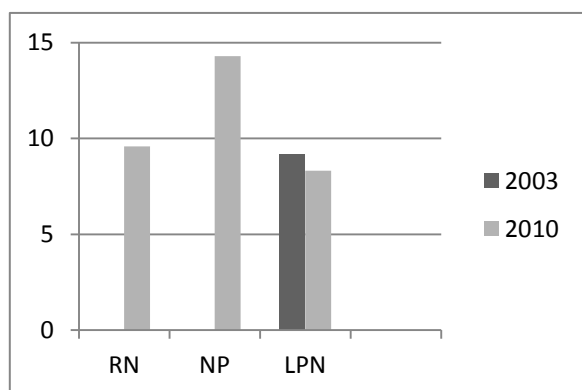
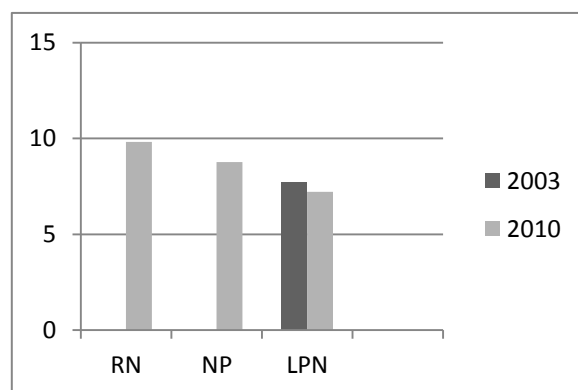


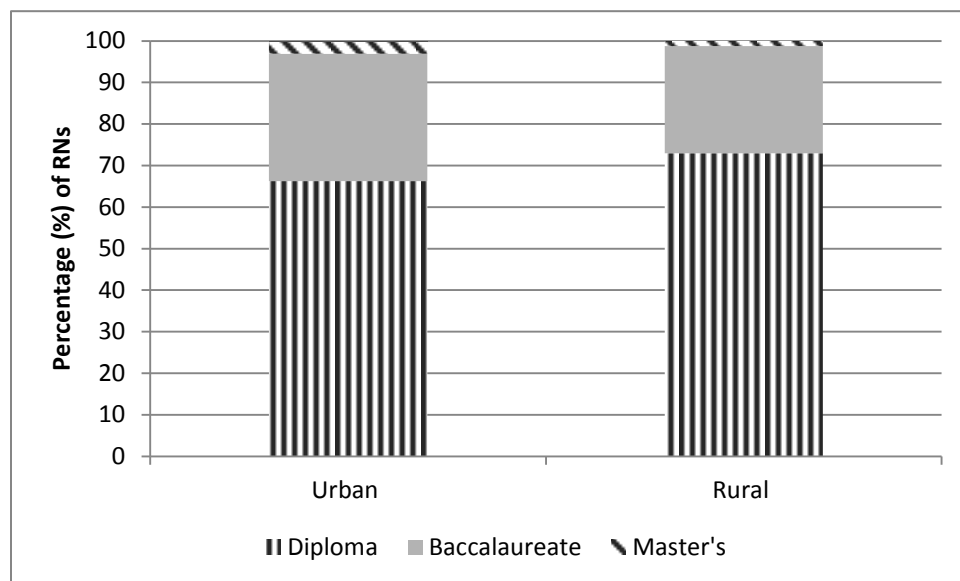
Figure 2. Proportion male nurses, urban QC



### 4. Education

Education data for RNs and NPs were not available for 2003. In 2010, more rural than urban RNs had diplomas for initial education (94.9% compared to 90.4%). In terms of highest nursing education, 72.9% of rural RNs had diplomas, 25.9% had baccalaureate degrees, 1.2% had Master's degrees, and none had doctorate degrees. Urban RNs had higher education attainment levels, with 66.2% reporting diplomas, 30.7% reporting baccalaureate degrees, 3.0% reporting Master's, and 0.1% reporting doctorate degrees. Figure 3 compares highest nursing education categories for rural and urban RNs in Québec for 2010.

Figure 3. Proportion of RNs by highest nursing education categories, rural-urban, 2010, QC



## 5. Employment

### **Employment Status:**

The NDB 'employment status' categories are: full-time, part-time, casual and not stated. The nursing colleges and CIHI define regular nursing employment as guaranteeing "a fixed number of hours of work per pay period. May be defined by the employer as full-time or part-time, but reflects permanent employment even though it may be time limited" (CIHI 2012, p. 8). Casual nursing employment "does not guarantee a fixed number of hours of work per pay period" (CIHI 2012, p. 8). Table 4 provides employment status proportions by nurse type, rural/urban, and year.

Table 4. Employment status proportions by nurse type, rural and urban, 2003 and 2010, QC

	Urban			Rural		
	%FT	%PT	%Casual	%FT	%PT	%Casual
<b>2003</b>						
RNs	††	††	††	††	††	††
NPs	-	-	-	-	-	-
LPNs	41.6	45.9	12.5	32.8	47.3	20.0
<b>2010</b>						
RNs	57.4	32.6	10.1	53.3	33.2	13.5
NPs	91.2	7.0	1.8	85.7	14.3	0.0
LPNs	40.1	47.4	12.5	34.2	50.5	15.3

Note: †† - no urban/rural allocations of RNs were available for RNs in Quebec in 2003. Data were suppressed for the territories due to small cell sizes.

No 2003 data were available for RNs. In 2010, the majority of urban and rural RNs reported full-time status. Marginally more urban than rural RNs were in full-time positions, and marginally more rural than urban RNs were in part-time and casual positions.

No 2003 data were available for NPs. In 2010, most NPs reported full-time employment status. The proportion of NPs in full-time positions was higher in urban than in rural areas (91.2% compared to 85.7%). In rural areas, 14.3% of NPs reported part-time employment status, and none were in casual positions. In urban areas, 7.0% were in part-time positions, and 1.8% were in casual positions.

In both rural and urban areas, more LPNs reported part-time than full-time or casual employment status in 2003 and 2010. Between 2003 and 2010, the proportion of urban and rural LPNs in full-time changed very little, and part-time employment increased for urban and rural LPNs. Casual employment status did not change in urban areas, but decreased in rural areas from 20.0% to 15.3%.

### ***Multiple Employers:***

'Multiple employers' refers only to whether nurses have one or more employers. The actual number of employers was not available for this study.

In 2010, 7.2% of rural RNs and 9.4% of urban RNs in Québec worked for more than one employer. No data for multiple employer status were available for NPs.

The proportion of rural LPNs working for more than one employer did not change between 2003 and 2010 (~13%). Over the same time period, the proportion of urban LPNs working for multiple employers increased slightly from 14.4% in 2003 to 15.4% in 2010. More urban than rural LPNs had more than one employer in 2010.

### ***Place of Work:***

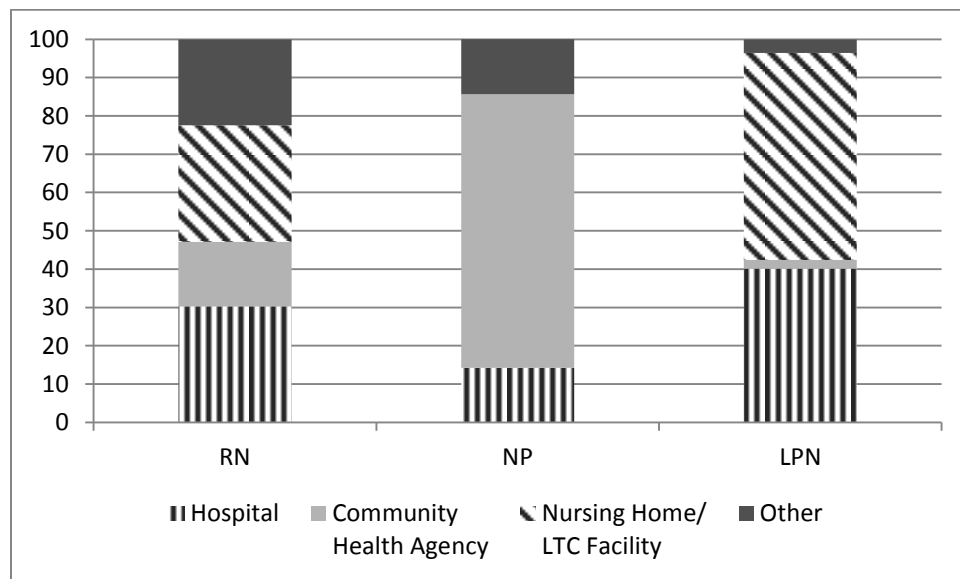
The 'place of work' NDB data element consists of approximately fifteen sub-elements. Enumeration of these sub-elements by urban-rural nurses and jurisdiction produces a large number of small cell sizes. As the numbers in these small cell sizes were suppressed, it was necessary to employ the CIHI grouping as indicated below:

- ***Hospital:*** Hospital, Mental Health Centre, Rehabilitation/Convalescent Centre
- ***Community Health Agency:*** Nursing Station (outpost or clinic), Home Care Agency, Community Health Centre, Public Health Department/Unit
- ***Nursing Home/Long Term Care Facility***
- ***Other Place of Work:*** Business/Industry/Occupational Health Office, Private Nursing Agency/Private Duty, Self-Employed, Physician's Office/Family Practice Unit, Educational Institution, Nursing Association/Government, Other
- ***Not Stated***

Figure 4 shows who worked in rural Québec hospitals, community agencies, nursing homes/LTC facilities and other settings in 2010. Primary place of work data for RNs or NPs were not

available for 2003. In 2010, more urban than rural RNs worked in hospital settings (59.8% compared to 30.3%). The primary place of work for 16.9% of rural RNs was community health agencies, compared to 9.7% of their urban counterparts; 39.4% of rural RNs worked in nursing homes/LTC facilities compared to 10.1% of their urban counterparts. In both rural and urban locations, ~21% of RNs reported 'other' as their primary place of work.

Figure 4. Primary place of work, rural nurses, 2010, QC



Note: Percentages computed excluding 'not stated' category.

The proportion of NPs working in hospital settings in 2010 was higher in urban than rural locations (75.4% compared to 14.3%). In the same year, the primary place of work for 71.4% of rural NPs was community health agencies. NPs in Québec are authorized to work in nursing homes/LTC facilities under very specific conditions; no rural NPs reported working in these facilities. Fourteen percent of both rural and urban NPs reported 'other' as their primary place of work.

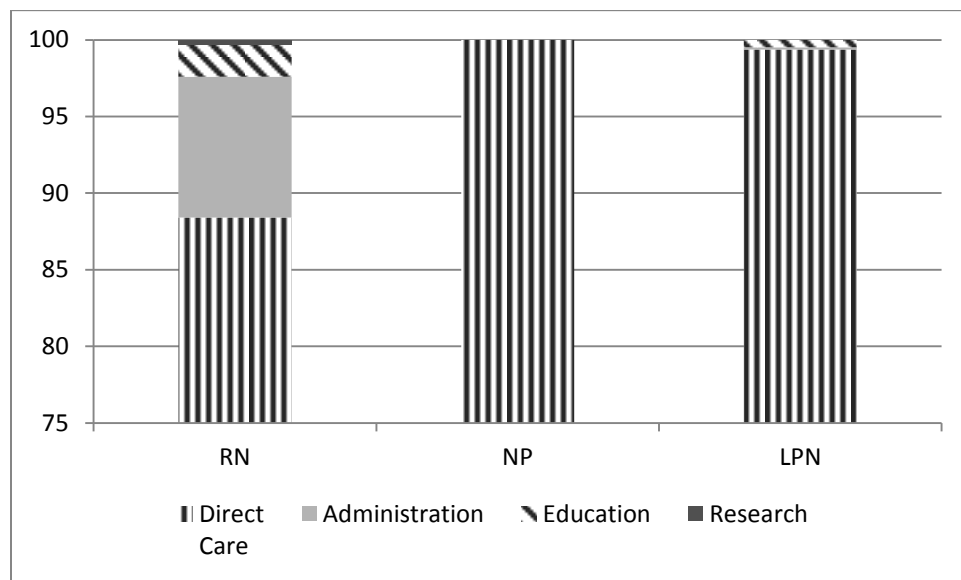
The proportion of rural LPNs working in hospitals increased between 2003 and 2010, from 34.1% to 40.2%, as did the proportion of rural LPNs working in community health agencies, from 1.3% to 2.2%. Meanwhile, the proportion working in nursing homes/LTC facilities decreased from 59.3% to 54.0%. These trends were similar to the patterns seen in urban areas during the same time period.

**Primary Area of Responsibility:**

Primary area of responsibility data for RNs or NPs were not available for 2003. In 2010, the majority of rural (88.4%) and urban (86.5%) RNs worked in direct care. The proportions of rural RNs working in administration, education and research were 9.2%, 2.1% and 0.3%, respectively. The proportions of urban NPs working in administration, education and research were 7.9%, 4.0% and 1.6%, respectively. One hundred percent of rural and urban NPs reported direct care as their primary area of responsibility.

Over 99% of rural and urban LPNs reported direct care as their primary area of responsibility in 2003. In 2010, this trend continued, with a very slight decrease for urban RNs to 98.2%. Very few rural and urban LPNs reported working in administration and education, and none reported research roles. Figure 5 illustrates nurses' primary areas of responsibility in rural Québec in 2010.

Figure 5. Primary area of responsibility, rural nurses, 2010, QC



Note: Percentages computed excluding 'not stated' category.

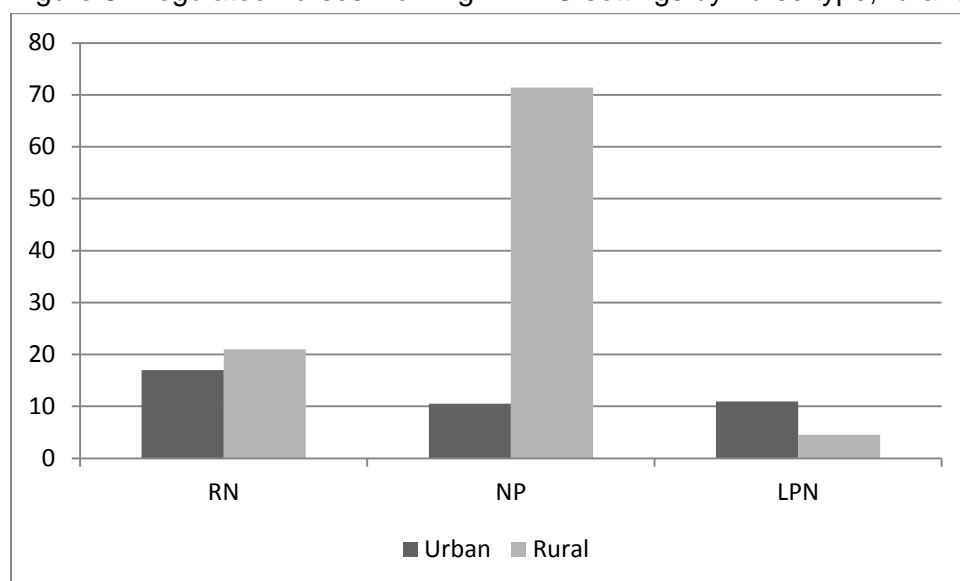
## 6. Work in Primary Healthcare Settings

Primary healthcare (PHC) settings include the following places of work: nursing station/outpost/nurse clinic; private nursing agency/private duty; business/industry/occupational health; self-employed/private practice; mental health centre; physician's office; home care agency; and, public health agency/community health centre (Wong et al., 2009).

Since primary place of work data were not available for RNs and NPs in 2003, PHC setting information is only provided for 2010. The proportion of regulated nurses working in PHC settings in rural and urban locations was essentially the same: 16.1% and 15.6%, respectively. In rural areas, 21.0% of RNs, 71.4% of NPs and 4.5% of LPNs worked in PHC settings. In urban areas, 17.0% of RNs, 10.5% of NPs and 10.9% of LPNs worked in PHC settings. Figure 6 shows the proportions for 2010 by nurse type, and rural-urban location.



Figure 6. Regulated nurses working in PHC settings by nurse type, rural-urban, 2010, QC



Note: Percentages are estimates due to suppressed cells in some categories.

## 7. Migration

### ***International:***

Nurses who obtained their entry-to-practice education in a country other than Canada are considered to be ‘international nursing graduates’ (INGs).<sup>1</sup> Generally, in Canada, larger proportions of urban than rural nurses are ING.

In Québec in 2010, 2.9% of urban RNs and 0.6% of rural RNs were ING. In the same year, no LPNs reported being ING.

### ***Interprovincial:***

Interprovincial migration is generally characterized as nurses moving to a neighbouring province/territory or a relatively large ‘magnet’ province. In 2003 and 2010, the top interprovincial migration destination for Québec educated nurses – both rural and urban – was Ontario. Table 5 provides details of interprovincial migration for RNs, LPNs and NPs in 2003 and 2010. Due to the limited data and suppression of small cells, the information provided in this table should be considered estimations.

<sup>1</sup> Also known as ‘internationally educated nurses’ (IENs).

Table 5. Interprovincial migration for RNs, LPNs and NPs, 2003- 2010, QC

	RNs		LPNs		NPs	
	2003	2010	2003	2010	2003	2010
Total number of nurses in QC	62,494	66,333	14,831	20,244	-	64
Received initial nursing education in QC	63,794	67,452	380	20,715	24	125
Proportion retained <sup>2</sup>	94% (n=59,791)	94% (n=63,618)	-	98% (n=20,244)	-	48% (n=60)
Number not retained <sup>3</sup>	4,003	3834	-	471		65
Proportion working in urban areas of other jurisdictions <sup>4</sup>	-	92%	-	86%	-	72%
Proportion working in rural areas of other jurisdictions <sup>5</sup>	-	8%	-	14%	-	†
Top two destinations	ON (66%) BC (14%)	ON (66%) BC (12%)	-	ON (57%) NB (20%)	-	ON (78%)
Proportion registered in QC who received initial nursing education elsewhere	4% (n=2703)	4% (n=2715)	-	0% (n=0)	-	6% (n=4)
Top three jurisdictions other than QC where initial nursing education was received	ING (57%) ON (24%) NB (14%)	ING (66%) ON (20%) NB (10%)	-	-	-	†

† Suppressed in accordance with CIHI's privacy policy; small cell size.

- No data available.

Note: The numbers and proportions reported in this table should be considered estimates due to suppression of small cells.

<sup>2</sup> This is the proportion of those nurses who received their initial education in Québec who are also registered in Québec.

<sup>3</sup> This is the proportion of those nurses who received their initial education in Québec who are registered in jurisdictions other than Québec.

<sup>4</sup> This refers to a percentage of those nurses who were not retained (i.e., received initial education in Québec but are registered in jurisdictions other than Québec).

<sup>5</sup> Percentages for urban and rural may not add up to 100 due to some suppressed cells.

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- du Plessis, V., Beshiri, R., Bollman, R.D. and Clemenson, H. (2001). Definitions of rural. *Rural and Small Town Canada Analysis*, Bulletin 3:1-16.
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### **Further information about the full study is available from:**

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## APPENDIX 1 Québec Synopsis

	Year 2010		RNs		LPNs		NPs	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Number of nurses employed in nursing	59,278	7,055	17,205	3,039	57	7		
Number of nurses per 100,000 population	933	456	271	196	1	0		
Average age (years)	43	45	41	43	38	38		
Gender (%)	Male 10 Female 90	10 90	7 93	8 92	9 91	14 86		
Place of work (%)	Hospital 60 Community Health Agency 10 Nursing Home/LTC Facility 10	30 17 30	42 2 43	40 2 54	75 11 0	14 71 0		
Primary area of responsibility (%)	Direct Care 87 Administration 8 Education 4 Research 2	88 9 2 0	98 1 1 0	99 0 1 0	100 0 0 0	100 0 0 0		
Full-time/part-time status (%)	Full-Time 57 Part-Time 33	53 33	40 47	34 51	91 7	86 14		
Position (%)	Staff 80 Managerial 6 Other 14	82 7 10	97 0 3	97 0 3	0 0 100	0 0 100		
Highest education in nursing (%)	Diploma 66 Bachelor's 31 Master's 3	73 26 1	-	-	-	-		
Place of graduation (%)	Canada 97 Foreign 3	99 1	100 0	100 0	94 4	100 0		

## APPENDIX 2

### The Regulated Nursing Workforce Employed in Direct Care, By Health Region, 2011

Health Region Name	RNs		LPNs		All Reg Nurses		
	Pop Estimates	Direct Care Counts	Per 100,000 Population	Direct Care Counts	Per 100,000 Population	Direct Care Counts	Per 100,000 Population
Bas-Saint-Laurent	200,462	1,681	839	670	334	2,351	1,173
Saguenay – Lac-St-Jean	273,461	2,208	807	971	355	3,179	1,163
Capitale-Nationale	701,204	7,779	1,109	2,208	315	9,987	1,424
Mauricie et Centre-du-Québec	495,849	3,439	694	1,326	267	4,765	961
Estrie	312,150	2,462	789	918	294	3,380	1,083
Montréal	1,958,257	18,748	957	6,404	327	25,152	1,284
Outaouais	368,181	1,794	487	673	183	2,467	670
Abitibi-Témiscamingue	146,419	1,146	783	374	255	1,520	1,038
Côte-Nord	95,802	795	830	213	222	1,008	1,052
Nord-du-Québec	15,809	142	898	35	221	177	1,120
Gaspésie – Îles-de-la-Madeleine	93,130	821	882	391	420	1,212	1,301
Chaudière-Appalaches	406,401	2,427	597	1,053	259	3,480	856
Laval	403,744	1,948	482	764	189	2,712	672
Lanaudière	469,916	2,231	475	798	170	3,029	645
Laurentides	555,614	2,779	500	1,325	238	4,104	739
Montréal	1,456,743	6,774	465	2,866	197	9,640	662
Nunavik	1,1498	159	1,383	5	43	164	1,426
Terres-Criées-de-la-Baie-James	15,023	140	932	0	0	140	932
<b>Québec</b>	<b>7,979,663</b>	<b>57,473</b>	<b>720</b>	<b>20,994</b>	<b>263</b>	<b>78,467</b>	<b>983</b>
<b>(Direct Care Total)</b>							
<b>Canada</b>	<b>34,482,779</b>	<b>231,234</b>	<b>671</b>	<b>81,646</b>	<b>237</b>	<b>317,464</b>	<b>921</b>
<b>(Direct Care Total)</b>							

Source: CIHI. (n.d.). Regulated Nurses: Canadian Trends, 2007-2011. Ottawa, ON: CIHI.

Note: The urban-rural breakdown of these data and comparable 2010 data are not available. Data were suppressed in accordance with CIHI's privacy policy; small cell size.