

## Ontario Nurses' Journey to Work Patterns and Implications

In order to determine whether nurses are “rural” or “urban,” some studies have looked at nurses’ place of residence. This information is readily available in Canada, as provincial and territorial regulatory bodies of nursing ask for place of residence as part of the annual registration process. But this approach could overestimate the numbers of rural nurses, as it is known anecdotally that some nurses living in rural areas actually work in cities.

Some, but not all, regulatory bodies of nursing across Canada collect both the home address of nurses and the address of their primary place of work. The College of Nurses of Ontario is among those that do so. Data collected through registration are held in nursing databases maintained by the Canadian Institute for Health Information (CIHI): the Registered Nurses Database (RNDB) for Registered Nurses (RNs) and Nurse Practitioners (NPs), and the Licensed Practical Nurses Database (LPNDB) for Registered Practical Nurses (RPNs).

As part of a broader geographical analysis of nursing in Ontario in 2007 using these databases, researchers found that only 6% of RNs work in rural areas, where 12% of the general population lives. This contrasts with the finding of a 2002 report from the CIHI that in Ontario, “the proportion (13%) of RNs who are located in rural areas is the same as that of the general population.” This 2002 report was using only nurses’ place of residence.

Clearly, some nurses work in a different community from where they live. Because both addresses are now available for Ontario, researchers were able to do a preliminary exploration of nurses’ commuting patterns: Where do nurses travel for work? How far? And who commutes outside their home community?

### Patterns of Commuting

A commuter is often thought to be a person who lives in the peripheral suburbs or beyond and works downtown. In this study, however, a much broader definition was used: all employed nurses were considered to be commuters, whether they walk a block or two to work or whether they drive or fly to work that is many kilometres away. Thus, commuting can be for any distance and in any direction (towards or away from the urban core, or from one suburb or rural area to another).

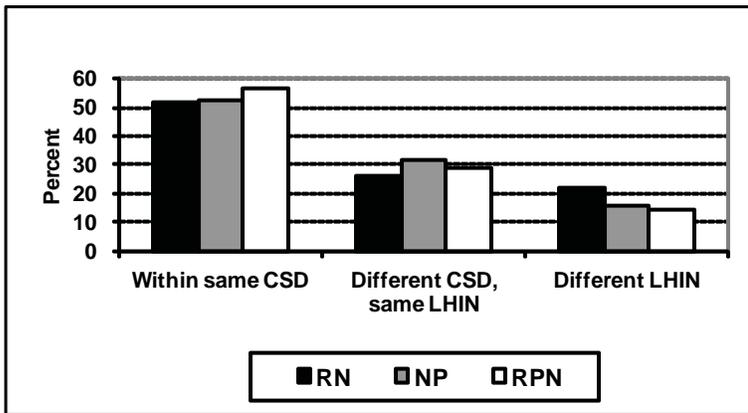
Three categories of commuting nurses were defined: those who live and work in the same community (i.e. the same census subdivision, or CSD, as defined by Statistics Canada); those who live in one community but work in another within the same Local Health Integration Network (LHIN); and those who live in one LHIN but work in another.

RNs, RPNs, and NPs are similarly spread among these three categories (see Figure 1). However, NPs are the least likely of the three to work outside their community;

This issue of Research in FOCUS on Research is based on part of the report *Nursing in Ontario, 2007: A Geographical Analysis* by J. Roger Pitblado and Raymond W. Pong, Senior Research Fellow and Research Director, respectively, of the Centre for Rural and Northern Health Research, Laurentian University. This December 2008 report was prepared for the Nursing Secretariat of the Ontario Ministry of Health and Long-Term Care.

The views expressed here do not necessarily reflect those of the Nursing Secretariat or Laurentian University.

**Figure 1. Where Nurses Journey to Work**



RPNs are the most likely to work in a different CSD within the same LHIN; and RNs are the most likely to work outside their home LHIN.

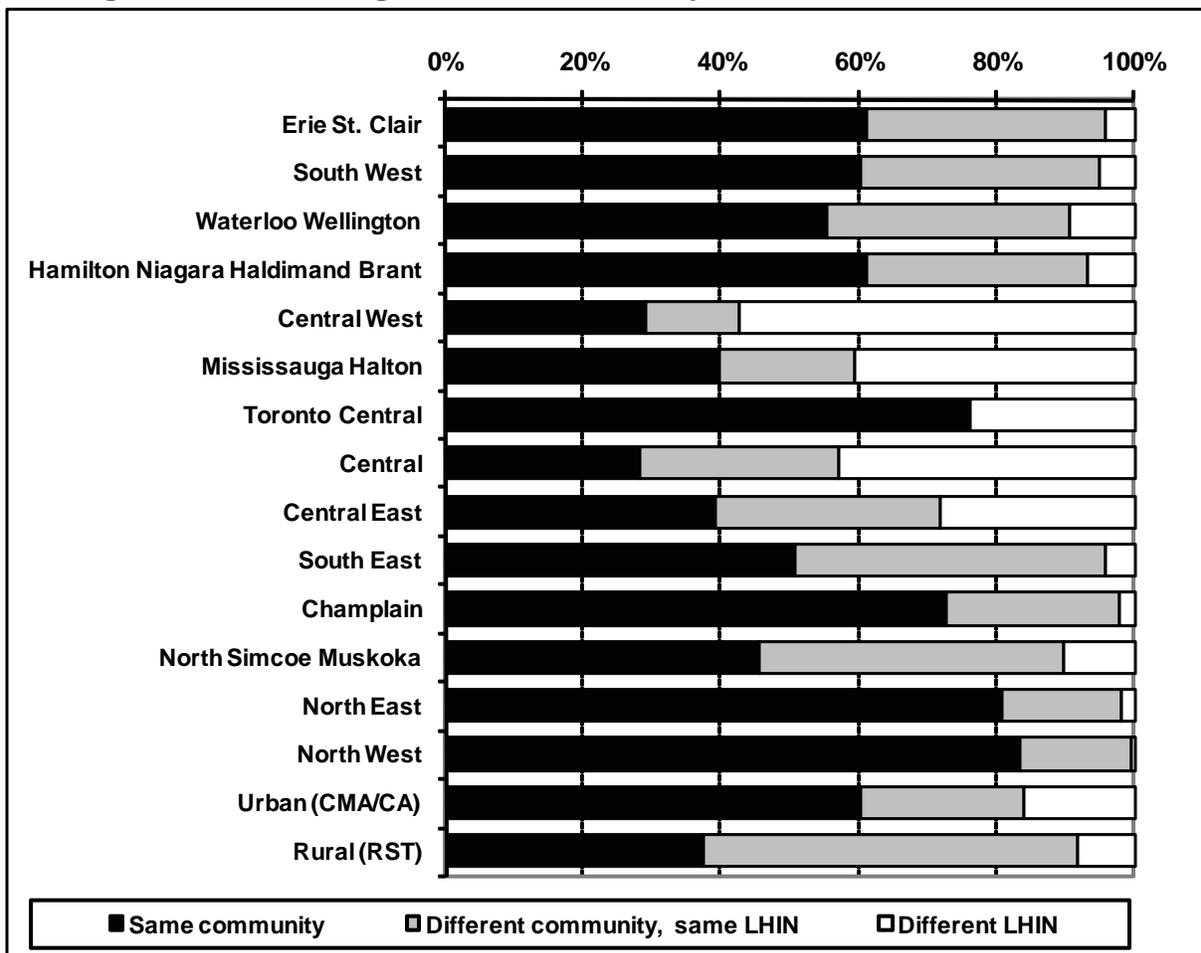
This pattern can be broken down by LHIN and by whether the nurses' home addresses are in urban communities (over 10,000 population) or rural communities (under 10,000 population).

Figure 2 shows RPNs' commuting patterns (RN patterns are similar; the numbers for NPs were too small to allow for data release). Nurses living in Toronto and in the two large northern LHINs were most likely to work in their home community.

Another way to look at the commuting patterns is to compare the size of the community where the nurses live with the size of the community where they work (see Table 1 on p.3). In general, for all three nursing groups, the larger the urban centre a nurse lives in, the more likely it is that the nurse will work in a community of the same size (presumably the same community). From 70% to almost 100% of nurses who live in urban areas also work in urban areas. While the numbers of nurses living in urban centres and working in rural areas are small by comparison, they constitute 14% of RNs, 31% of NPs, and 12% of RPNs who work in rural areas.

Nurses who live in rural communities that are near urban centres are the most likely to travel to work outside their home community. Nurses who live in rural areas constitute between 7% and 9% of the urban nursing workforce.

**Figure 2. Commuting Patterns of RPNs by LHIN and Urban-Rural Areas**



**Table 1. Commuting Flows:  
Percentages of Nurses by Community Type**

Type of Nurses and Residence Community Type	Workplace Community Type						
	CMA (100,000+)	CA (50,000-99,999)	CA (10,000-49,999)	Strong MIZ	Moderate MIZ	Weak MIZ	No MIZ
<b>RN</b>							
CMA (100,000+)	98.8	0.0	0.7	0.2	0.1	0.1	0.0
CA (50,000-99,999)	4.6	89.2	1.7	2.1	2.1	*	*
CA (10,000-49,999)	18.8	0.5	75.7	2.2	1.9	0.8	0.1
Strong MIZ	55.5	5.9	21.5	13.2	3.5	*	*
Moderate MIZ	23.6	6.8	20.2	2.8	39.9	6.6	0.2
Weak MIZ	6.1	1.9	4.0	1.0	4.4	82.1	0.6
No MIZ	5.3		8.3		4.5	29.5	52.3
<b>NP</b>							
CMA (100,000+)	92.7		2.2	*	3.0	*	
CA (50,000-99,999)	*	66.7	*	*	22.2		
CA (10,000-49,999)	14.9		70.1	*	11.9	*	
Strong MIZ	39.5	*	20.9	23.3	*	*	
Moderate MIZ	13.6		*	8.5	66.1	*	*
Weak MIZ	*				*	80.6	
No MIZ						*	5*
<b>RPN</b>							
CMA (100,000+)	98.3	0.0	0.9	0.5	0.2	*	*
CA (50,000-99,999)	2.5	88.6	1.5	5.2	*	*	
CA (10,000-49,999)	10.2	0.5	84.3	2.5	2.2	0.2	
Strong MIZ	41.2	6.4	24.1	23.0	4.9	0.4	
Moderate MIZ	14.0	7.3	15.6	4.7	52.9	*	*
Weak MIZ	3.1	0.9	2.7	1.2	*	88.1	*
No MIZ					*	*	48.0

\* Value suppressed in accordance with CIHI privacy policy.

Data sources: 2007 RNDB and LPNDB, Canadian Institute for Health Information

MIZ - Metropolitan Influence Zone. Strong MIZ typically means rural areas close to urban centres; No MIZ typically means the most remote rural areas.

As we travel further from the large urban centres, the periphery-to-urban core commuting pattern diminishes. Increasingly, as we move to those communities with weaker pull to the urban centres, Ontario nurses live and work in their home community or in another rural community that is fairly close by.

## Distance Travelled to Work

For the purposes of this study, the distance (in kilometres) a nurse travelled from residence to workplace was estimated using straight-line distances (“as the crow flies”) between the latitude and longitude values associated with the postal codes of residence and workplace. Statistics Canada has also used this method to calculate commuting distances. This method often underestimates actual travel distances, especially in rural areas, but the relative magnitudes tend to be correct. Commuting distances to workplaces within the community, to a different community in the same LHIN, and outside the home LHIN can be compared for the three types of nurses, for urban and rural nurses, and for nurses who live in the 14 different LHINs.

As expected, urban-dwelling nurses travelled shorter average distances to work (16 km for RNs, 25 km for NPs, and 13 km for RPNs) than their rural counterparts (35 km for RNs, 36 km for NPs, and 24 km for RPNs).

Those nurses who worked in the same community in which they lived had an average commute between 3 km (RNs in North Simcoe Muskoka LHIN, NPs in South West and Waterloo Wellington, and RPNs in North Simcoe Muskoka and North West) and 12 km (NPs in Champlain). Across the province, the averages were 6 km for RNs and NPs, and 5 km for RPNs.

Those nurses who travelled to a different community within their home LHIN had average commutes ranging from 11 km (NPs in Waterloo Wellington) to 92 km (NPs in North West). Provincial averages were 25 km for RNs, 40 km for NPs, and 23 km for RPNs.

Not surprisingly, those who travelled from home to workplaces in a different LHIN had by far the longest average commutes, ranging from 19 km for RNs living in Toronto Central LHIN to over 1,000 km for RNs living in North West LHIN. Averages across the province were 41 km for RNs, 71 km for NPs, and 37 km for RPNs.

## Who Commutes Outside Their Home Community?

Using additional data collected through nurses' registration, we can determine some of the characteristics of those who travel to work outside their home community. For example, for all three types of nurses (RNs, NPs, and RPNs), males are more likely than females to commute outside their home community. Similarly, nurses aged 45 or older are more likely to commute outside their home community than younger nurses. Not surprisingly, RNs and RPNs who work at more than one workplace are more likely to travel to work outside their home community than those with a single workplace. Overall, RNs who live in urban areas are much more likely to commute outside their home community than RNs who live in rural areas. This pattern is similar for NPs and RPNs but not as strong.

Other characteristics available from nurses' registration data that can be looked at in the context of commuting include: initial education, place of graduation, highest education level, full-time or part-time status, working in direct or non-direct care, working as staff/community health nurse or not, and working in a hospital or not.

## For Further Study

This preliminary exploration of nurses' commuting patterns, using both their home and work addresses, estimates more accurately than previously the numbers of nurses who work in rural areas. The analysis suggests that fewer nurses work in rural areas than previously indicated. Such information will help nursing workforce planning.

Several questions remain unanswered. We don't know whether the flows shown in the figures and tables represent short or long distances. Are all the commutes done on a daily basis? Does commuting limit the availability of nurses for being "on call"? Is commuting farther and farther from home becoming more common? To what extent has commuting replaced moving to another community on a more permanent basis?

More detailed and extensive consideration of commuting patterns may well be useful in the context of nurses' work schedules and of health and safety both on the job and during the commute. Implications may emerge regarding recruitment and retention of nurses. Studies of commuting patterns may also help in profiling labour markets and in understanding economic and personnel links among and between rural and urban areas.

09-A1

Research in **FOCUS** on Research is published by the Centre for Rural and Northern Health Research (CRaNHR), Laurentian University. Each issue is a summary of a study conducted by CRaNHR researchers. As a form of knowledge dissemination and transfer, it is intended to make research accessible to a wider audience.

For further information, please contact:  
**Centre for Rural and Northern Health Research**  
Laurentian University  
Ramsey Lake Road  
Sudbury, Ontario, Canada P3E 2C6

phone: 705-675-1151 ext. 4357  
fax: 705-675-4855  
e-mail: [cranhr@laurentian.ca](mailto:cranhr@laurentian.ca)  
URL: [www.cranhr.ca](http://www.cranhr.ca)