Nursing Human Resources: What Do We Know?

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Health human resources (HHR) is recognized by key decision-makers and researchers as a top priority in healthcare. Recently, seven priority information needs for HHR management were identified (CIHI 2005a):

- Demographics
- Education/training
- Geographical distribution
- Migration
- Non-migration–related attrition
- Employment/practice characteristics
- Productivity

The nursing workforce is an integral part of the Canadian healthcare system and constitutes the largest group within the healthcare workforce in Canada. The Canadian nursing workforce includes three regulated occupational groups that work in a variety of roles and organizations across the continuum of care. These include licensed practical nurses (LPNs), registered nurses (RNs) and registered psychiatric nurses (RPNs).[1]

The composition and practice of the nursing workforce is influenced by both external and internal factors. External factors – such as changing population demographics, new technologies and treatment modalities and changing public expectations – each affect the nursing profession and the clients and patients it serves. Internal factors – such as school enrollment and attrition, work life environment, changing workforce demographics, staff mix and utilization – each influence the supply and distribution of regulated nurses. These factors – more

specifically, workforce demographic and practice characteristics – are the current focus of most data collection and information gathering.

However, no single data holding or survey can answer every question. The multitude of information required by decision-makers and planners studying the health system – from hospital units to rural communities to entire provinces – necessitates the development of many different types of data, each with its own focus and area of specialization. A comprehensive portrait of the nursing workforce and its composition requires understanding good-quality information from many different data sources.

This paper aims to provide a brief overview of the types of information currently available for the nursing workforce in Canada, and some sense of the information not currently collected. The data holdings and surveys discussed here are illustrative, not exhaustive. In general, the focus is on pan-Canadian data holdings that are currently active, ongoing and available to public access. More narrowly focused research projects, a comprehensive list of which was developed for the recent Nursing Sector Study (Tomblin Murphy et al. 2005), are generally not discussed here but can be very helpful in responding to focused information needs.

Data about Nurses Entering the Workforce

A critical component of long-term planning of nursing human resources (NHR) is understanding the number of nursing students, and prospective students, entering the system. For information on students, there exist three key sources of data. The Enhanced Student Information System at Statistics Canada tracks the number of students enrolled in and graduating from a wide range of disciplines, including nursing. Nursing Education Data, a survey maintained by the Canadian Nurses Association (CNA) and the Canadian Association of Schools of Nursing (CASN), "supports accurate projections of the number of graduates eligible to enter the nursing workforce, details the number of nurses obtaining graduate and post-graduate qualifications and provides important faculty demographic information" (CNA 2006). A third source is the Canadian Registered Nurse Exam, administered by Assessment Strategies Incorporated (ASI) in partnership with the CNA and provincial/territorial RN regulatory authorities. ASI maintains data on the number of Canadian- and foreign-trained students writing and passing the exam, along with other key demographic information.

Little is known, however, about the number of qualified students denied acceptance into Canadian nursing schools, and enrollments in practical nursing and psychiatric nursing programs. The number of LPN and RPN graduates is available from the Canadian Institute for Health Information's (CIHI) Health Personnel Database, which provides the number of graduates for various health disciplines. Gaps exist for the number of nursing students lost to attrition.

Likewise, the number of new nurses leaving the country (or the profession) after successful completion of the national exam is not known.

Once a nurse enters the Canadian system, she or he must register with a provincial/territorial regulatory authority, such as the College of Nurses of Ontario. The administrative databases held by these regulatory authorities contain a wealth of demographic, practice, education and training information for the current workforce. Figure 1 shows the evolution of administrative nursing data.

Data about Nurses in the Workforce

A wide range of data holdings examine the existing nursing workforce, from demographic characteristics such as age and sex to employment and practice characteristics, the geographical distribution of nursing professionals, intra- and inter-provincial migration, work life and health, compensation and remuneration and, to a lesser extent, workload and productivity of regulated nurses. Data for regulated nurses in the workforce are available from administrative databases, such as CIHI's Canadian Regulated Nursing Professionals Database, and from surveys such as Statistics Canada's Census and Labour Force Survey and the Nursing Sector Study Corporation's recent study, which included, in part, a national survey of nursing professionals.
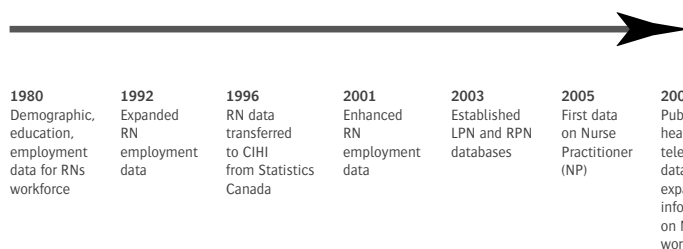
Despite different methodologies and data collection techniques, the information available from such varied data

figure 1	**Evolution of administrative nursing data**

CIHI is responsible for the development, maintenance and enhancement of the Canadian Regulated Nursing Professionals Database, which include the Licensed Practical Nurses Database (LPNDB), the Registered Nurses Database (RNDB) and the Registered Psychiatric Nurses Database (RPNDB). These administrative databases compile information collected from the registration form that all regulated nurses complete annually. This figure shows the evolution of the types of information available, as well as plans for future data.

These data holdings include information on the distribution of regulated nurses (such as by province/territory and by urban/rural/remote location); demographic characteristics such as age and sex; education characteristics such as initial education in nursing and year and location of graduation; and practice characteristics such as place of work, primary area of responsibility, position and full-time/part-time status. These data are collected by CIHI from provincial/territorial regulatory authorities on an annual basis.

1980	1992	1996	2001	2003	2005	2007
Demographic, education, employment data for RNs workforce	Expanded RN employment data	RN data transferred to CIHI from Statistics Canada	Enhanced RN employment data	Established LPN and RPN databases	First data on Nurse Practitioner (NP)	Public health, telehealth data added; expanded information on NP workforce

holdings can be compiled to present a comprehensive picture of the current workforce. An analysis of employment characteristics such as full-time/part-time rates for registered nurses may begin, for example, with CIHI's data – 32.1% of RNs were employed part-time in 2003. It may also include supplemental information from the Labour Force Survey, which shows that 82% of RNs who work part-time chose to do so in 2003 – well above the overall labour force rate of 72% (Pyper 2004).

With census data from Statistics Canada, characteristics of registered nurses and licensed practical nurses can be compared against characteristics of Canadians outside the nursing field for indicators such as inter-provincial migration or ethnicity. More in-depth information on labour market activity and income is available from Statistics Canada's Survey of Labour Income and Dynamics.

Proxy measures of inter-provincial migration are also available from administrative databases. For example, recent information on the migration of nursing professionals after graduation shows that between foreign graduates and graduates from other Canadian jurisdictions, almost 40% of British Columbia's regulated nursing workforce did not graduate in that province (CIHI 2005b).

Compensation and remuneration data are often available from nurses' unions. In addition, sources such as CIHI's Canadian MIS Database use a standardized chart of accounts to collect financial and statistical data from health service organizations across Canada. Some of these data include expenses reported in nursing functional centres such as compensation and supply expenses, and statistical data such as earned hours, workload units and inpatient days.

A new pan-Canadian survey on the work and health of nursing professionals was completed in early January 2006, with results to be released in early 2007. This survey will help identify relationships among selected health outcomes, the work environment and work life experiences for LPNs, RNs and RPNs in Canada. These data will help fill an important knowledge gap about the work environment for nurses. Existing data from the Labour Force Survey reported that in 2003, full-time RNs were absent from work an average of 15.4 days, and LPNs an average of 17.6 days. Those absenteeism figures compare to an average rate of 9.1 days for all occupations (Pyper 2004).

Despite multiple sources of data for workforce characteristics, evolving information needs require further data development. In response, regulatory authorities for all three nursing professions are moving forward with plans to begin collecting public health employment data separately from the broader category of community health. These data should be available starting in 2007 to better assist public health planners and researchers.

Another knowledge gap that CIHI, the RN regulatory authorities, CNA and CASN are working to fill concerns nurse practitioners (NPs), a comparatively small but critical addition to the

healthcare team. Very little information has been available historically regarding the education, training and practice of nurse practitioners in Canada. CNA and CASN are working to improve NP enrollment and graduation data, while CIHI, CNA and the RN regulatory authorities are aiming to improve the quantity and quality of workforce information available for nurse practitioners by 2007.

Data about Nurses Exiting the Workforce

Some knowledge gaps are more difficult to fill. Two indicators currently sought by decision-makers, researchers and the media are non-migration–related attrition (why nurses leave the workforce) and the number of Canadian nurses currently working outside Canada, particularly in the United States. Comprehensive, accurate data for these questions are difficult to obtain, in part because these nurses can be difficult to locate and/or survey.

Later in 2006, CIHI will release a short analysis of the demographic and practice characteristics of regulated nurses who failed to renew their annual registration in 2004. Although this type of retrospective analysis cannot say where those nurses are currently living or working, it can help to understand those who chose to leave their province of employment, adding one more piece of information to the HHR puzzle.

Conclusion

Nursing human resources management requires coordinating efforts, both in identifying emerging information needs and in identifying how existing information can answer key policy questions. The understanding of NHR continues to grow and, as research organizations learn more about specific needs and expectations, data collection is evolving to address priority knowledge gaps and work towards meeting future information needs.

The greatest challenge is ensuring that data development and collection keep pace with legislative and structural changes, and thus are able to answer specific analytical questions. Data collection also needs to keep pace with the evolution of the nursing profession, from changing scopes of practice to new models of delivery.

Filling existing gaps is never a simple task. New data holdings – whether administrative databases or pan-Canadian surveys – are expensive and require time and expertise to develop. Modifications to existing data holdings can be complicated as well, as efforts to improve the data's accuracy can affect comparability to historical data (and thus have the potential to skew observed trends). Developing data holdings that keep pace with changes in healthcare delivery requires collaboration and input from many key stakeholders.

Nursing leaders have a critical role in identifying and communicating existing knowledge gaps and needs for information. Collaboration and partnership are key for research organizations, regulatory bodies and researchers that collect and analyze the information required to support sound healthcare decision-making.

Endnotes

1 In Canada, registered psychiatric nurses are educated and regulated as a separate nursing profession in the provinces of Manitoba, Saskatchewan, Alberta and British Columbia.

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