Supply and Demand for Cardiac Nurses in Ontario: Perceptions of CNOs

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Abstract

This article presents the results of a nursing survey of cardiac care hospitals undertaken by a Cardiac Care Network of Ontario Consensus Panel on Cardiovascular Human Resources. The focus of the Panel was to identify areas of current or pending shortages in human resources and make recommendations to the Ministry of Health and Long-Term Care about human resource management in adult cardiac care in Ontario. The article presents the number and mix of full-time, part-time and casual nursing staff, the age distribution of RNs, and the number of vacant Registered Nurse (RN) positions for a sample of cardiac care hospitals in Ontario. Next a sample of Chief Nursing Officer opinions about factors contributing to current difficulties in recruiting RNs and the outlook for future shortages are presented. Implications for nurse managers are offered, including development of new recruitment and retention strategies, identification of further efficiencies in care provision, and a need for nurse manager involvement in debates about the future of how health care is provided in Canada.

Introduction

Cardiac care is a highly specialized area of health care requiring nurses and other professionals with advanced training. As the prevalence of cardiovascular disease continues to rise in Canada, nursing human resource needs are expected to increase in order to meet projected demand for cardiac care.

The current nursing shortage in Ontario is well documented. O'Brien-Pallas et al (1998) stated that "the aging population of nurses, the shrinking pool available for work, and the decreasing applicant pool are all changing the face of nursing in Ontario." They further emphasized the need to focus on how many and what type of nurses Ontario needs. Over the past four years, the Cardiac Care Network of Ontario (CCN) has highlighted nursing and other human resource needs across the continuum of cardiac care in its consensus panel reports, and made broad recommendations on how they could be addressed. This article presents the results of a nursing survey of cardiac care hospitals undertaken by a CCN Consensus Panel on Cardiovascular Human Resources (the Panel). The focus of the Panel was to identify areas of current or pending shortages in human resources and make recommendations to the Ministry of Health and Long-Term Care about human resource management in adult cardiac care in Ontario.

Method

It was the Panel's original intention to collect and present data on definitive indicators of nursing shortages. A review of the scientific and policy literature, including the Medline and HealthSTAR databases from 1990 to present, and Panel member contributions revealed that valid data were not available. Consequently, in order to obtain primary data about cardiac human resource issues, surveys of nursing activities at cardiac care hospitals were undertaken.

A questionnaire was developed and tested by nurse Panel members. CCN maintains a membership list of 40 Ontario hospital sites that have significant cardiac programs (e.g., surgery, angioplasty, cardiac catheterization, pacemaker implantation). The questionnaire and accompanying letter were sent to the Chief Nursing Officers (CNOs) of all 40 hospital sites on May 16, 2000. No questionnaires were accepted after June 26, 2000 and, by this date, 35 (88%) of the hospital sites had replied, including all eight of the cardiac surgical centres.

The Panel recognized the limitations of opinion-based surveys; however, the lack of relevant and reliable data resulted in the Panel relying on these surveys to identify the various pressure points within the delivery of cardiac care in Ontario.

Results

The number and mix of full-time, part-time and casual nursing staff working in cardiac care

Table 1 shows 35 participating hospitals reported a total of 3,008 full-time equivalent (FTE) Registered Nurses (RNs) working in cardiac care. Of these, 63% of the FTEs were full-time, 32% part-time, and 4% casual. About two-thirds of the RNs work in the Cardiovascular Intensive Care Unit (CVICU)/Coronary Care Unit (CCU)[1] and in the cardiology units. This low proportion of casual RN FTEs is surprising, given the perception among some that a high and growing proportion of RNs are working in casual positions in Ontario. The appropriate balance between full-

Table 1: Registered Nurses in cardiac services at 35 participating hospitals (Full Time Equivalents)

	Full-time	Part-time	Casual	Total FTEs
CVICU/CCU	723	411	56	1,190
Cardiology	455	266	36	757
Other	316	78	8	402
Cardiovascular unit	183	108	21	312
Outpatient	94	62	12	169
Cardiovascular OR	68	21	0	89
Vascular unit	47	22	1	70
Prevention/rehabilitation	16	2	1	18
Total RNs	1,903	971	134	3,008

time, part-time and casual nurses cannot be defined with confidence. It is a balance between the desires of individual nurses and the needs of the hospital. A high proportion of full-time positions may limit a hospital's flexibility to manage schedules but a low proportion may compromise continuity and quality of care. These issues notwithstanding, the Panel viewed the reported split of positions within this subset of nurses as positive in the context of the commonly heard trend of "casualization" of the nursing workforce in Ontario.

Table 2 shows 35 participating hospitals reported a total of 76 FTE Registered Practical Nurses (RPNs) working in cardiac care. The relatively low use of RPNs among Ontario cardiac hospitals is not surprising given that cardiac

Table 2: Registered Practical Nurses in cardiac services at 35 participating hospitals (Full Time Equivalents)

	Full-time	Part-time	Casual	Total FTEs
CVICU/CCU	0	0	0	0
Cardiology	21	18	7	46
Other	8	6	6	20
Cardiovascular unit	1	2	0	3
Outpatient	0	4	0	4
Cardiovascular OR	1	2	0	3
Vascular unit	1	0	0	1
Prevention/rehabilitatio	0	0	0	0
Total RPNs	32	31	13	76

care is generally perceived to require specialized nursing care and that several studies have found that higher RN skill mix has a lower incidence of adverse occurrences (Blegen, Goode & Reed, 1998; Rowel, 2000).

The age distribution of RNs working in cardiac care

Table 3 shows 34 participating hospitals reported that 48% of RNs working in cardiac care were aged 40 or younger and 5% were over 55 years of age. The aging of the nurse population is Ontario has been well documented (RNAO, 2000; O-Brien-Pallas, Baumann, & Lochhaas-Gerlach, 1998). However, the age distribution of cardiac RNs shows a somewhat younger group of nurses than the provincial average.

The number of vacant RN positions in cardiac care

Table 4 shows 35 participating hospitals reported a total of 57 full-time and 138 part-time vacant RN positions. The largest number of vacant positions was part-time RNs for CVICU/CCU. The percent of vacant RN FTEs in cardiac care was considered by the Panel to be lower than those for many other clinical areas. However, the Panel recognized that reported vacancy rates have to be carefully interpreted and it identified several potential explanations for the relatively low RN vacancy rate in cardiac services.

First, the reported vacancies were for unfilled budgeted FTE positions. A low vacancy rate may reflect reliance on overtime, casual and agency nurses (for whom vacancies may not be reported) versus full-time staff nurses (for whom vacancies would be reported). The Panel also heard many reports of short-term vacancies due to sick leave or stress-related illnesses, which would not be captured in the reported vacant positions.

Second, although the number of RN vacancies was low, at the time of the survey, ninety-four percent of respondent hospitals were recruiting and, among those, 90% were having difficulty filling vacant positions. Almost all respondents identified significant difficulty in recruiting, training and retaining nursing staff in critical and cardiac care areas. This suggests that the relatively low RN vacancy rate may be indicative of constant, aggressive recruiting efforts versus an adequate supply of RNs.

Third, one survey respondent highlighted how a RN vacancy rate at a particular point in time can disguise ongoing recruitment and retention issues: *"Three months ago, the hospital had no ICU vacancies. Today, it has 13 vacancies. Four are temporary vacancies because staff are scheduled for surgery, two are maternity leave; two have moved for family reasons, two moved to a new unit for day jobs and three are going back to school..."* This comment is illustrative of how a hospital could report an adequate number of nurses one week and then be in crisis mode several weeks later, particularly when one considers that it may take a hospital from six to nine months

Table 3: Registered Nurses in cardiac services at 34 participating hospitals by age group

	Number	Percent
Under 30	356	12.8
31- 40	984	35.3
41 - 45	538	19.3
46 - 50	459	16.5
51 - 55	321	11.5
56 - 60	106	3.8
over 60	21	0.8
Total	2,785	100.0

to recruit and train a nurse to fill a vacancy. Table 4 also shows a much lower vacancy rate for full-time positions compared with part-time.

Table 4: Number of vacant Registered Nurse positions in cardiac services at 35 participating hospitals

	Full-time	Part-time
CVICU/CCU	15	71
Cardiology	14	24
Other	12	23
Cardiovascular unit	7	14
Outpatient	4	3
Cardiovascular OR	5	0
Vascular unit	0	3
Prevention/rehabilitation	0	0
Total vacant RN FTEs	57	138
Total budgeted RN FTEs (from Table 1)	1,903	971
RN vacancy rate (total vacant RN FTEs / total budgeted RN FTEs)	3%	14%

Table 5: Chief Nursing Officers' ratings of reasons for difficulties in currently recruiting Registered Nurses for cardiac services

	*Average rating by CNOs	Number of CNOs responding
ICU certification	4.0	25
CCU certification	3.8	24
Overall Shortage	3.6	23
Competition	3.6	23
Lack of FT positions	3.5	24
Workload	2.2	23
Lack of PT positions	1.8	21

* A rating of "1" denoted "not an issue" and a rating of "5" denoted "a critical issue"

Factors contributing to current difficulties in recruiting RNs

Table 5 shows the results of asking the CNOs to rate the factors that account for the current difficulty in recruiting RNs on a scale of 1 to 5, where 1 was defined as "not an issue" and 5 defined as "a critical issue." The leading factor identified was the lack of ICU and CCU certified nurses. One respondent to the Nursing Survey highlighted the training issue as follows: *"No shortage in staff at this time. However, when we do, there is quite a lag time required for training, as there are no trained nurses to choose from."*

The shortage of certified ICU and CCU nurses was attributed to a number of factors:

- The training cost to the nurse or hospital.
- The risk of being bumped if transferred to a new clinical service.
- There may be no significant financial incentive for certification.
- Lack of access to specialty training and certification courses.

Current and future shortages of RNs

Table 6 shows the results of asking the CNOs of the participating hospitals to provide an opinion on current and future (within five years) shortages in the various categories of cardiac nursing. The ratings were on a scale of 1 to 5, where "1" was defined as "no shortage" and "5" defined as "severe shortage." In responding to the question about shortages, many respondents did not provide a rating for all of the items. If they believed there was no shortage, and gave no rating instead of indicating a rating of "1", then the average ratings would be overstated (as responses with no rating were omitted from the averages). Thus, figures in Table 6 where the number responding is low should be interpreted with caution.

CVICU/CCU was identified as the area of greatest shortage. More interesting was the finding that shortages of RNs in all cardiac services are expected to get worse over the next five years. The panel identified several reasons for the expectation of a worsening shortage.

First, there is a shrinking pool of casual nurses. The overtime associated with high utilization rates, short-term vacancies and long lead times for finding and/or training appropriate candidates for full-time and part-time positions are resulting in a high degree of reliance on casual and agency nurses. Although the survey did not ask about recruiting issues and vacancies around casual nurses, the respondents wrote in many comments pointing to a "constant shortage of casual RN staff", "high turnover rate

Table 6: Chief Nursing Officers' ratings of current and future shortages in Registered Nurses for cardiac services

	Average rating by CNOs		Number of CNOs reporting	
	Current	Future	Current	Future
CVICU/CCU	3.5	4.1	23	26
Outpatient	2.9	3.2	10	10
Cardiology	2.7	3.4	21	23
Cardiovascular unit	2.4	3.2	6	11
Cardiovascular OR	2.3	4.1	5	9
Vascular	2.0	3.0	2	6
Prevention/rehabilitatio	2.0	2.8	5	8

within this group", and "no casual ICU nurses for replacement." One respondent pointed to: *"High level of difficulty recruiting casual cardiac cath lab RNs."* Another noted that *"Two recent vacancies (in a pacemaker clinic) were impossible to fill with experienced candidates."*

Second, more Canadian nurses are being recruited to the United States. With its similar demographics to Canada, the US is also experiencing a shortage of registered nurses (Bednash, 2000). Buerhaus, Staiger & Auerbach (2000) projected a severe shortage of nurses in the United States by 2020, driven primarily by "fundamental, permanent shifts in the labor market" (e.g., the aging of the population and the recent expansion of career opportunities for women), similar to the challenges in Canada. In the same article, the authors cite higher wages, better working conditions and the recruitment of RNs educated outside the US as feasible (though potentially controversial) long-term strategies to address the shortage.

Third, there is expected to be rapid growth in the prevalence of cardiac disease and the proliferation of procedures for cardiac patients. Based on a recommended increase in target surgery rates, CCN (2000) projected that cardiac surgery in Ontario will increase by 23% over the next five years. In addition to this growth, the opening of two new cardiac centres will contribute to the need for ICU nurses. CCN (1998) estimated that a minimum of 23 FTE ICU nurses are required for one surgical centre.

Fourth, hospitals are exhausting the efficiency strategies to cope with increasing demand. To date, hospitals have increased occupancy rates, reduced length of patient stays, asked nurses to work more overtime hours, and used agency nurses to meet increased workloads in cardiac services. There may not be many more efficiencies that can be realized through work redesign and clinical management. In fact, there are signs that the system is being stretched beyond capacity. For example, although the question was not posed in the survey, many CNOs indicated to the Panel that ICUs were operating at close to 100% occupancy rate, much greater than the 85% occupancy rate at which many of these units are budgeted. This suggests that clinical efficiencies alone are unlikely to offset future shortages of RNs.

Conclusions and Recommendations

There are indications of increasing RN shortages in critical care and highly specialized areas (e.g., cardiac catheterization laboratory, and pacemaker clinic nurses) that result in excessive workloads, unwanted overtime, and a stressful work environment. Competition for Canadian nurses from other jurisdictions, especially the United States, may compromise the success of any training and recruitment initiatives if appropriate actions are not taken to also address retention issues. The Panel recognized that significant new funding has recently been provided by the Ontario government to create new nursing positions. However, a general shortage of RNs, increasing demand for cardiac surgery and treatment, and the long lead time to train cardiac nurses in this area of specialization means that the shortage of cardiac care RNs will likely increase over the next five years.

Although the Panel only dealt with cardiac nurses, many of its findings are important to other nursing specialties. The Panel's scope was to develop a consensus view on the current and future supply of cardiac nursing and other human resources and to lay the foundation for more formal cardiac human resource planning. With this in mind, the Panel made three basic recommendations:

Recommendation 1 -
Need for a Cardiac Human Resources Database

The Panel's efforts to assess the adequacy of human resources were frustrated by a general lack of accurate, timely, relevant and complete data on the number of professionals and other staff who provide cardiac care in Ontario. Therefore, the Panel recommended that the CCN or another appropriate body be charged with the formal responsibility of establishing and maintaining a cardiac human resources database, including an inventory by profession, indicators of the adequacy of the supply of cardiac human resources, and other information that could affect the need for and supply of cardiac human resources. CCN would co-ordinate this effort with other provincial and national cardiac organizations and would make the results of this work available to all interested parties.

Recommendation 2 -
Short-term Shortages and Strategies

The Panel recommended that the Ministry of Health and Long-Term Care consult and work with relevant professional organizations to explore various short-term means of alleviating the current cardiac human resource shortage in Ontario, addressing both recruitment and retention issues identified in their report. As one example, the Ministry could provide funding to nurses for ICU training and to hospitals for the associated staff time to relieve these nurses.

Recommendation 3 - Long-term Shortages and Strategies

At present, there is no formal relationship between the number of training positions in cardiac care and the population-based need for services. Due to the long training period for cardiac providers such as acute care nurse practitioners, shortages in these resources cannot easily be solved in the short-term, which suggests that long-term planning is necessary to ensure adequate resources in the future.

Long-term planning should be based on valid data about the supply of cardiac human resources, estimates about the future population-adjusted utilization, knowledge of new and emerging treatments and procedures, and the impact of these on the need for and utilization of cardiac human resources. In addition, the scope of long-term planning should include ongoing assessment of how cardiac care is delivered and identification of new models of care that could result in more effective utilization of cardiac human resources. For example, Canada is behind many other developed countries in the widespread use of nurse practitioners in primary cardiac care. Long-term planning should also address the quality of work life and compensation issues since they are an important component of retention and repatriation initiatives.

The Panel recommended that the Ministry of Health and Long-Term Care or other appropriate body consult and work with CCN, relevant professional organizations, academic institutions and organizations, and others to develop and implement a long-term planning strategy (including responsibilities and accountabilities) for the training, recruitment and retention of cardiac human resources in Ontario. As one example, the Ministry could develop a strategy to match training positions (e.g., acute care nurse practitioner training and placements) more closely to the projected need for services.

The Panel recognized that human resource planning for cardiac care cannot be undertaken in isolation. Any proposed strategy must address nursing shortages in the system as a whole to avoid inducing shortages in other areas of nursing. The Panel however believes that the development of appropriate human resource databases, investment in specialty training, and attention to current retention and recruitment issues are needed in the immediate term. In the long term, planning strategies which link the education of health professionals to the projected need for service in the future will ensure a sustainable workforce for the health care system.

Implications for Nurse Managers

What do the findings from this study mean for nurse managers responsible for cardiac and other programs? In our opinion, there are four major implications. First, nurse managers will be confronted with the need to develop innovative recruitment strategies. Recruitment of newly trained and nurses with specialized training will become more competitive than ever before. Because nurse shortages are likely to be a reality in most developed countries, competition for nurses will require more of an international strategy compared to the provincial and local strategies that characterized some previous shortages. Nurse managers will likely have to expand the geographic scope of their search for new nurses to previously unconsidered jurisdictions. Some may decide to jointly recruit with other hospitals in order to maximize exposure and to minimize costs. Unfortunately, it is also likely that some hospitals will recruit by attracting nurses from other Canadian hospitals. Nurse managers will likely see more of a no-holds-barred approach to recruiting and will need to be prepared for such tactics.

Second, nurse managers will be challenged to develop new retention strategies. They are likely to increasingly be confronted with demands for signing bonuses, paid educational leave, and other incentives in order to retain nurses. Nurse managers may have to augment incentives included in collective agreements in order to retain valued nursing staff.

Third, it will be vital for nurse managers to assist in development of new strategies to do more work with existing resources. Some of these efficiency gains may be the consequence of new technology, treatment methods and drugs that further reduce length of stay or avoid inpatient admission altogether. However, some efficiency gains will also be the result of nurse managers continuing to carefully evaluate the relationships among nurse-staffing patterns and cost, quality and outcome. In an era of human resource shortages, focusing on nursing interventions with proven efficacy is an appropriate way of trying to do more with less. There is also an urgent need for more academic research into the determinants and interrelationships among nursing cost, quality, and outcomes.

Fourth, we believe nurse managers are instrumental in resolving these issues and it will be critical for them to

get involved in local and provincial forums where the future of health care is debated. Why has Canada not used nurse practitioners to the same extent as other countries? Could multidisciplinary teams of primary care physicians and nurses do a better job of disease prevention? Should there be more advanced practice roles for nurses? Do nurses have the appropriate amount of practice autonomy given their education? Why has primary care reform stalled in many provinces? Answers to these questions are likely to be the only long-term solutions to the many problems faced by health care in Canada and the views of nurse managers are important to consider.

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[1] The questionnaire asked for ICU and CCU combined, as many hospitals record the information this way. However, some hospitals provided ICU and CCU separately, which resulted in many ICU and CCU nurses being included in the "Other" category.

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