Building the Future: An integrated strategy for nursing human resources in Canada

REVIEW OF CONCURRENT RESEARCH ON NURSING LABOUR MARKET TOPICS
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Preface

This report is part of an overall project, **Building the Future: An integrated strategy for nursing human resources in Canada**. The goal of the project is to create an informed, long-term strategy to ensure that there is an adequate supply of skilled and knowledgeable nurses to meet the evolving health care needs of all Canadians. Through surveys, interviews, literature reviews, and other research, Building the Future will provide the first comprehensive report on the state of nursing human resources in Canada. The project comprises the following two phases.

**Phase I:** Research about the nursing labour market in Canada is being conducted in stages. Reports will be released as the research work is completed to share interim findings and recommendations with the nursing sector. A final report will be produced at the conclusion of this phase that will include all of the recommendations accepted by the Nursing Sector Study Corporation.

**Phase II:** A national strategy will be developed in consultation with government and non-government stakeholders that builds on the findings and recommendations presented at the completion of Phase I.

To oversee such a complex project, the Nursing Sector Study Corporation (NSSC) was created in 2001. The Management Committee of NSSC comprises representatives of the signatories to the contribution agreement with the Government of Canada and other government groups.

The multi-stakeholder Steering Committee for the project comprises approximately 30 representatives from the three regulated nursing occupations (licensed practical nurse, registered psychiatric nurse, and registered nurse), private and public employers, unions, educators, health researchers, and federal, provincial and territorial governments. The Steering Committee guides the study components and approves study deliverables including all reports and recommendations.

Members of the Management Committee and the Steering Committee represent the following organizations and sectors.

Aboriginal Nurses Association of Canada
Association of Canadian Community Colleges
Canadian Alliance of Community Health Centre Associations
Canadian Association for Community Care
Canadian Association of Schools of Nursing
Canadian Federation of Nurses Unions
Canadian Healthcare Association
Canadian Home Care Association
Canadian Institute for Health Information
Canadian Nurses Association
Canadian Practical Nurses Association
Canadian Union of Public Employees
Health Canada
Human Resources and Skills Development Canada

National Union of Public and General Employees
Nurse educators from various institutions
Ordre des infirmières et infirmiers auxiliaires du Québec
Ordre des infirmières et infirmiers du Québec
Professional Institute of the Public Service of Canada
Registered Psychiatric Nurses of Canada
Representatives of provincial and territorial governments
Service Employees International Union
Task Force Two: A human resource strategy for physicians in Canada
Victorian Order of Nurses Canada

Together, we are committed to building a better future for all nurses in Canada and a better health system for all Canadians.
Executive Summary

Nursing labour market topics have become a priority for Canadian researchers, policy makers and decision makers. Convenient access to nursing labour market information is important for current and future research and will continue to be a priority as the area continues to evolve and responds to new challenges. The purpose of this report was to create a comprehensive inventory of active current research in topics related to the nursing labour market. The inventory includes active research at both the national and provincial/territorial levels. The intent of this work was two-fold. First, the inventory informs the project team and steering committee of any relevant research important for the study of the Canadian nursing labour market. Second, this research inventory provides a reference tool to help prevent duplication of effort by the project research team, Steering Committee, and the broader nursing stakeholder community. It is intended as a communication mechanism and a research tool to prevent duplication of research and to provide stakeholders with an overview of current work in this field to inform policy and to enhance evidence-based decision-making. The compiled research is related to members of the three regulated nursing professions throughout Canada:

- registered nurses (RNs)
- registered psychiatric nurses (RPNs).
- licensed practical nurses (LPNs, referred to as registered practical nurses in Ontario)

Methods

In Part I of the study, systematic Internet searches were conducted on an ongoing basis to locate websites with nursing labour market sector study-related grey literature. The information was retrieved, assessed, summarized, and then listed by provincial/territorial jurisdiction and topic. In each provincial/territorial section, studies undertaken by the jurisdiction were described, including the type of nursing profession data collected, and the nursing groups included (RN, LPN, RPN). Details of “nursing strategies” or nursing human resource planning documents were also described.

Part II of the study involved searching Canadian health research funding agencies, websites (e.g., Canadian Institute of Health Research/CIHR, Canadian Health Services Research Foundation/CHSRF, Canadian Nurses Foundation/CNF, and the Social Sciences and Humanities Research Council/SSHRC) and grey literature sources for current or recently completed studies related to the nursing labour market. The research has been subdivided into key areas that inform the nursing labour sector study and nursing human resource planning. Each section begins with a description of the relevance of the topic to the nursing labour market based on empirical evidence. The description is followed by a list of research projects currently active or recently completed in the area, including investigator names, title, funding source, purpose, and findings when available.
Recommendations

It is a challenge to identify research related to the nursing labour market sector presently funded in Canada. It is also noteworthy that most of the research to date focuses on RNs only, with few studies related to RPNs and LPNs.

A mechanism should be implemented to facilitate the ongoing compilation and analysis of related research to inform nursing related policy making in this country. This mechanism will require both leadership and resources.

Regular updates and the addition of new and ongoing research and their findings by nursing stakeholder groups to this communication tool will be essential to success in meeting the intended goals of the project.

Evidence specific to RNs, RPNs and LPNs and their distinct contributions to, and unique positions in, the health care system must be added to the inventory as it is funded and carried out. It is imperative that the outcomes related to each nursing group are distinguishable and recognized for their roles in health human resource planning (HHRP).
1. Introduction

Nursing labour market topics have become a priority for Canadian researchers, policy makers and decision makers. Convenient access to nursing labour market information is important for current and future research and will continue to be a priority as the area evolves and responds to new challenges. The purpose of Step I was to create a comprehensive inventory of active concurrent research of topics related to the nursing labour market. This is the first comprehensive compilation and analysis of related research to inform nursing-related policy-making in this country. This report focuses on current Canadian research related to members of the three regulated nursing professions: registered nurses, licensed/registered practical nurses, and registered psychiatric nurses. The inventory includes active research at national and provincial/territorial levels. The intent of this work was two-fold. First, the inventory informs the project team steering committee, of any relevant research important for the study of the Canadian nursing labour market. Second, this research inventory provides a reference tool to help prevent duplication of effort by the project research team, steering committee, and the broader nursing stakeholder community. It is important to note that many of the lead investigators in other steps in this project carried out extensive literature reviews and critical appraisals of the literature, which are not included in Step 1. The reader is encouraged to examine the literature reviews in the other sections of the report to gain a more in-depth understanding of a particular topic.

The first section of this report consists of a description of recommendations made in the Canadian Nursing Advisory Committee (CNAC) Report, a federal nursing human resource initiative developed in 2002 to address the nursing shortages experienced by all jurisdictions in Canada. This is followed by a description of nursing labour market related research in Canadian provinces and territories and, where available, a description of action taken on CNAC recommendations in each area of Canada. Based on an extensive review of the grey literature, it appears that the strategies carried out by the provinces and territories have largely taken the form of nursing labour market studies, analysis of data repositories and nurse recruitment and retention strategies.

The second section of this report is a compilation of recently completed and active Canadian research directly relating to the nursing labour market. The investigators’ names, project titles, funding agencies and project purposes, where available, are listed. Furthermore, the status of the research—whether it is ongoing or completed—is identified where available. It is important to note that the status of projects was not easily captured as some of the work is not published and therefore not readily available on an Internet or a MEDLINE search. Moreover, requests for proposals related to this area of investigation were not included. Studies are grouped by major issues, identified as important to nursing human resource research.
This report contains information regarding the members of the three regulated nursing professions in Canada: registered nurses, licensed/registered practical nurses and registered psychiatric nurses. The following acronyms are used in this report:

- RNs registered nurses
- LPNs licensed/registered practical nurses
- RPNs registered psychiatric nurses

(Note that although the acronym RPN refers to registered practical nurses in Ontario, Canada, it is not so used in this report.)
2. Methods

2.1 Search Strategies and Identification of Relevant Literature

2.1.1 Development of a Classification Framework

The development of a classification framework facilitated a systematic and standardized collection of information on research that was relevant to topics related to the nursing labour market. The Steering Committee approved the framework at a meeting in 2003. This framework was used to identify research in the nursing labour market sector but not to appraise the literature.

2.1.2 Grey Literature

The electronic “grey” literature was reviewed to capture the recent nursing labour market sector studies and the nursing strategies developed federally and by Canadian provinces and territories. Policy institutes, research units, governments and government agencies, professional associations and unions, think tanks, universities, and not-for profit organizations release a number of reports that are seldom integrated into conventional literature vehicles, such as journals or bibliographic databases. However, the websites of these organizations frequently provide access to this unpublished or “grey” literature. Grey literature is defined by the U.S. Interagency Grey Literature Working Group as “open source material that usually is available through specialized channels and may not enter normal channels or systems of publication, distribution, bibliographic control, or acquisition by booksellers or subscription agents” (Soule & Ryan, 1995). It includes academic papers, scientific protocols, white papers, pre-prints, committee reports, proceedings, conference papers, research reports, standards, discussion papers, technical reports, dissertations, theses, government reports, house journals, newsletters, working papers, essays, and electronic columns. Grey publications are valued as sources of comprehensive, concrete, and up-to-date information on research findings and investigations (System for Information on Grey Literature, 2002). Grey literature provides valuable and often unique information that can rapidly inform specific scientific communities, funding bodies, and policy makers about the results of research projects and other initiatives (Tomblin Murphy & Barrath, 2002).

According to Tomblin Murphy and Barrath (2002) the Health Human Resource Planning (HHRP) research community is interested in grey literature because of its potential as a source of credible information that can be accessed quickly and inexpensively. The quality of web information is influenced by the resources available to the website owner to maintain current information. Visitors must critically appraise the quality of information on each site. The exploitation of grey literature to address HHRP issues should be part of an overall literature review strategy that includes a thorough search of all information sources (Helmer, Savoie, & Green, 1999; Weaver et al., 2002). Researchers and policy-makers must consider what role grey information can play in meeting their information needs and in what subject areas it is most likely to be advantageous or productive (Soule & Ryan, 1995).

Grey literature, however, has limitations. First, it is not well covered by the usual electronic databases or standard publication channels and so it is less readily identified and accessed than conventionally published literature (Isenberg, 1999; Soule & Ryan, 1995). Although this situation is changing as Internet distribution expands, it has been found that material on the web is often posted and removed.
at the discretion of site owners, leaving little record of its existence. Second, while thousands of health-related organizations generate literature, only a fraction of that literature is of interest to the HHRP community. Third, grey literature varies widely in quality and is seldom peer-reviewed (Soule & Ryan, 1995). These limitations place a significant burden on the traditional collection stage of the research cycle. Hence, those who wish to use grey literature as a source of information must be prepared to expend more resources in collecting and processing it than they would in the case of other published material (Soule & Ryan, 1995).

Including grey literature in this approach familiarizes the research team with ongoing developments in the field. Among the web resources of nursing labour sector grey literature are those provided by university-based research units, federal and provincial government departments, funding agencies, and professional associations. Key words used for the searches were a compilation of terms agreed to by the Steering Committee very early in the process. These key words included:

- nursing labour
- nursing sector
- nursing manpower planning
- health human resource planning
- nursing research
- health services research
- nurse retirement
- nurses and health outcomes
- nursing resources
- nursing utilization
- nurse career changes

Since grey literature is not well covered by common electronic databases or standard publication channels, it is more difficult to identify and access than conventional published literature. *Copernic 2001*, a software program, was used to carry out network searches by simultaneously consulting the most appropriate search engines of the Internet. *Copernic 2001* features a search wizard, the ability to search using a question or keywords, keyword highlighting in results and web pages, a detailed search history, automatic software updating and useful search management functions. Systematic Internet searches were conducted on an ongoing basis to locate websites with nursing labour market sector study related grey literature. The information was retrieved, assessed, summarized, and then listed by provincial/territorial jurisdiction and topic. Moreover, web searches using advanced search strategies and a range of search engines and meta-search engines, namely Google, Alta Vista, Metacrawler, Dogpile, Northern Light, Debriefing, Savvy Search, and Hotbot, were carried out.

### 2.1.3 Data from Organizations and Governments

Documents acquired from contact with organizations and provincial/territorial governments were also reviewed. The results of the scan were reported according to provincial/territorial jurisdiction.
Each section identifies studies undertaken by the jurisdiction, the type of nursing profession data collected, and the nursing groups included (RN, LPN, RPN). Details of “nursing strategies” or nursing human resource planning documents were also described.

2.1.4 Research Classification

Several areas important to the nursing labour market were identified and used as a method of categorizing relevant Canadian studies. A consultation with the research team leaders was carried out via e-mail communication to identify the important variables to be examined in detail. Furthermore, these variables are included in the Simulation Modeling activities in this project.

Canadian health research funding agencies websites (e.g., CIHR, CHSRF, CNF, and SSHRC) and grey literature sources were searched for current or recently completed studies related to the nursing labour market. The research has been subdivided into the following important areas that inform the nursing labour sector study and nursing human resource planning:

1. Health Human Resource Modeling
2. Nursing School Entrance
3. Skill Mix and Staffing
4. Illness/Disability
5. Stress and Satisfaction
6. Retirement
7. Nursing Data and Outcomes Research

Each section begins with a description of the relevance of the topic to the nursing labour market. The description is followed by a list of research projects currently active or recently completed in the area, including investigator names, title and a brief description of the purpose. It should be noted that many of the research projects conducted in recent years fall into several topic categories. Often several categories are interwoven and dependent on each other. For example, job satisfaction can be related to the illness and disability of a nurse and may also be linked to early retirement. This example reveals the complex nature of nursing labour market sector and research. In the case where several issues are addressed, the project is classified according to the most prominent idea.
3. Overview of the Literature

3.1 National and Provincial / Territorial Literature

3.1.1 The Nursing Strategy for Canada and the CNAC Report

The objective of the Nursing Strategy for Canada, developed by provincial and territorial Ministers of Health, is to “achieve and maintain an adequate supply of nursing personnel who are appropriately educated, distributed throughout Canada, and deployed in order to meet the needs of the Canadian population” (Health Canada, 2003, p. 2). Four key areas defined in the strategy broadly define the 11 recommendations outlined in the report:

1) Unified action;
2) Improved data, research, and human resource planning;
3) Appropriate education; and
4) Improved deployment and retention.

The CNAC was developed in response to the call for the first strategy, unified action, emphasizing the importance of coordinating the different perspectives on issues of nursing practice into a joint action. Of central concern to the CNAC, comprised of nursing stakeholder groups from around the country, was the imminent threat of a nursing shortage that resulted from and reinforces relentless workload increases across all nursing disciplines (CNAC, 2002). The committee was formed to address the need to improve the quality of nursing work life in Canada.

The CNAC final report (2002) identified three principal root causes of the shortage of nursing care:

1. There are insufficient numbers of nurses present in the workforce to provide nursing care. Early retirement of those in the workforce coupled with reduced numbers of seats in nursing schools account for the decrease in absolute numbers of nurses.

2. The current human resources management issues such as high levels of part-time employment, limited scope of practice and high absenteeism make it impossible to maximize the productivity of those nurses who are able to work.

3. There are insufficient funds to hire the number of nurses required to fill the demand for nursing work.

CNAC (2002) made 51 recommendations for changes to policy initiatives at all levels of government to improve the working conditions of nurses. Generally, it was stated that absolute numbers of nurses in the workforce must be increased, educational opportunities for nurses must be improved, and the scope of practice of each nursing group must be maximized. If taken, these measures can reduce nursing workload and, in turn, improve the current and future working conditions for nurses in Canada.
The 51 CNAC recommendations were grouped into three broad categories.

1. Put in place conditions to resolve operational workforce management issues and maximize the use of available resources (CNAC, 2002, p. 2).
   - These recommendations were made to reduce the pace and intensity of nursing work. Specifically, many of recommendations were designed to increase the number of full-time nursing positions, reduce overtime and maximize the nurses' scope of practice.

2. Create professional practice environments that will attract and retain a healthy, committed workforce for the 21st Century (CNAC, 2002, p. 2).
   - It was recommended that Canada graduate more nurses at entry-level, masters-level and doctoral-level. Accordingly, there should be improved opportunities and funding for continuing education and professional development for those nurses already in the workforce. In order to address issues such as violence and abuse in the workplace this set of recommendations calls for increased respect for all health care workers.

   - This set of recommendations emphasizes the importance of monitoring the nursing workforce through initiatives such as a national survey of nurses' health. Modifications to the nursing workforce must also be made through the development of strategies to improve working lives of Canadian nurses.

3.1.2 Provincial / Territorial Reports

The CNAC final report (2002) has been a launch pad for many nursing labour market sector studies and nursing human resource strategies in both federal and provincial/territorial jurisdictional initiatives. CNAC has given policy-makers and nurse employers concrete strategies, through the 51 recommendations, to improve the quality of nursing in the country and, in turn, help avert the looming nursing shortage. Issues related to recruitment of nurses to the profession and retention of nurses in the profession are receiving the most attention.

The degree to which CNAC recommendations have been implemented in different provincial/territorial jurisdictions across Canada varies considerably. There is inconsistency in the breadth and quality of the nursing sector studies from one province or territory to the next. Some provinces and territories have demonstrated interest and financial commitment to research in the nursing labour market sector by focusing research time and dollars to develop strategies for the recruitment and retention of nurses. Other provincial/territorial jurisdictions do not appear to have followed up on the recommendations of the CNAC report. It is beyond the scope of this report to determine the reasons for the difference in follow-up activities by the provincial/territorial jurisdictions. Designation-specific
research is limited. In addition, it is difficult to distinguish between RNs, LPNs and RPNs in the research. Typically, research studies and reports have focused on RNs with fewer reports and data collection on RPNs and LPNs.

The following section outlines the activities carried out by the provinces and territories in Canada. It is worth noting that this section is based on the review of the grey literature at one point in time. Activities that have occurred since that time are not reflected. It will be important to use this report as a starting phase in the process of understanding and appreciating the ongoing work that is occurring in the area of the nursing labour market sector. It is also important to note that the largest number of nurses are living and working in Ontario and British Columbia, which may be one of the reasons why a large number of initiatives are found in these two provinces.

3.1.2.a British Columbia

There has been a substantial amount of nursing human resource planning and data from British Columbia in the last 10 years. The studies and reports generated in BC present nurse-designation specific data. Most of the recent BC reports reviewed make specific reference to RNs, RPNs, and LPNs. The Rollcall, Inventory and Place of Graduation reports provide annual snapshots of the health human resource personnel distributions in BC between 1987 and 2000. BC also conducted a series of studies entitled the Nursing Workforce Study that was divided into five different sections (Centre for Health Service and Policy Research, 2000). The primary purpose of the Nursing Workforce Study was to develop baseline data on the supply and education of RNs, LPNs, RPNs, and the employer practices pertaining to the staff-mix models (Centre for Health Service and Policy Research, 2000). Data from the 1990s was used in this five-volume report. In the report entitled Assess and Intervene, shortages of nurses in rural and remote communities and different nursing specialties were addressed more specifically (Health Human Resources Advisory Committee, 2000). The BC Ministry of Health Planning conducted the Health Human Resources Environmental Scans between 2000 and 2002 in which the number of nurses, age distributions, number of new graduates, and number of nursing school seats are reported (Ministry of Health Planning, 2002).

More recently, several studies concerned with new RN graduates in BC have been initiated. One of these reports, entitled New Graduate Registered Nurse Study - 2003, was released by the Registered Nurses Association of British Columbia. It includes details on employment patterns, workplace attributes, career intent and mobility of new RN graduates in BC (Registered Nurses Association of British Columbia, 2003). A longitudinal view of the characteristics of new RNs from 2001 to 2003 is presented in the report New Graduate Registered Nurse Study - 2004 (personal communication with Sandra Regan, July 9, 2004). A cohort of RNs who graduated in BC in 2002 will be followed in the longitudinal study named B.C. New Graduate Registered Nurses - 2002 Cohort - A Five Year Longitudinal Study. This study is being conducted by the Registered Nurses Association of British Columbia (personal communication with Sandra Regan, July 9, 2004). Data will be collected at three points—in 2003, 2005 and 2007—and will provide information about employment patterns, workplace attributes and the link to retention, career intent and mobility of new graduates.
3.1.2.b Alberta

Several reports out of Alberta speak about the need for health human resource planning but are not necessarily nursing specific. For example, the report *A Framework for Reform*, by the council chaired by the Honourable Don Mazankowski, made several recommendations to attract and retain health care professionals from all disciplines in Alberta (Premier's Advisory Council on Health for Alberta, 2001). The Alberta government responded with a commitment to fulfill many of the recommendations set forth by the report such as the development of an initiative to improve employee satisfaction.

More specific to nursing, a report entitled *Alberta Nurse Survey Final Report* summarizes the findings of the Alberta Nurse Survey of Hospital Characteristics (Giovannetti, Estabrooks, & Hesketh, 2002). This survey included information on nurses' work environment and work structure, staffing on their last shift, their perceptions of professional burnout and job satisfaction, the quality of care they provide, and workplace violence. In July 2002, Alberta Health and Wellness produced a report entitled *Comprehensive Workforce Plan - Supply and Demand for Health Workforce - Working Paper #3* (personal communication with Debbie Phillipchuck, July 12, 2004). This report describes current general trends and issues with the Alberta health workforce.

3.1.2.c Saskatchewan

A study out of Saskatchewan conducted in 1999 detailed the supply and demand trends for nurses. The data was used to develop a short-term forecast of Saskatchewan's imbalance between the supply and demand for nurses. Data, broken down by nurse type (RN, LPN, RPN), was gathered between 1990 and 1998 to provide basic counts, age distributions, number of graduates, retention rates, vacancy rates, and turnover rates (Elliott, 1999). In December 2001, *An Action Plan for Saskatchewan Health Care* was released outlining key areas to address in nursing human resources. Two of the goals were to increase the number of nursing school seats and improve bursary programs (Saskatchewan Government, 2001). In order to improve the workplaces of nurses it was recommended that professional development opportunities be enhanced. Another goal was to create opportunities for nurses to use their full range of education and skills. The action plan focused on supporting recruitment and retention efforts.

More recently the *Summary Report: The Quality Workplace Program Evaluation June 2003* reported on nurses' perceptions about the quality of their working environments in the units where a new Quality Workplace Program was implemented (Health Quality Council, 2003). After the implementation of the program most interviewees reported feeling more positive about themselves, their colleagues, and their workplaces. The report indicates that improved positive working environment is linked to a healthier workforce, and that improved job satisfaction among nurses yields better patient outcomes.

3.1.2.d Manitoba

In 2000, the Manitoba government made a commitment to recruit nurses in a number of areas of nursing practice, and to retain nurses by maximizing their professional skills and experience. The five-point nursing strategy aimed to: improve working conditions; increase the supply of nurses; improve access to education; and increase input into decision-making. A “Worklife Task Force” was formed to address issues that affect nurses' working conditions and their workplace environments. Since the release of the
strategy, a three-year update report evaluates the province's action on these five points and their impact on the nursing workforce (Manitoba Health, 2003). For example, in response to the goal to increase the supply of nurses the three-year updated report identifies that the number of occupied nursing seats in Manitoba has increased since 1999. All health authorities are utilizing LPNs and the number of active practising LPNs has increased over the last five years. Manitoba data represents all types of nursing designations (RNs, LPNs, and RPNs).

3.1.2.e Ontario

Ontario is another major contributor to the nursing sector body of information. In 1999 the Ontario Government accepted eight recommendations of the Nursing Task Force Strategy in Ontario (Joint Provincial Nursing Committee, 2001). Since that time, the number of nurses working in Ontario has increased, as has the number of full-time and permanent nursing positions. In addition LPN and RN education has changed considerably. These are just a few of the changes that have occurred in the early stages of the implementation of the Ontario Nursing Strategy. A recruitment and retention strategy was delivered to Ontarians in a report entitled Ensuring the Care Will Be There: A Report on Recruitment and Retention in Ontario in response to one of the recommendations of the task force (Registered Nurses Association of Ontario, 2000).

The Ontario Hospital Association conducted the Annual Health Care Provider Labour Market Survey (Ontario Hospital Association, 2002). This project was part of an initiative launched in 2001, which provided information on staffing numbers, recruitment and retention. The survey included a questionnaire looking at RN and RPN recruitment and retention strategies. The report also included data tables to quantify the numbers and types of nurses who are staffing hospitals.

Ontario also produced a survey asking nurses about their individual health and well-being as well and employee opinions about quality of work life in the Ontario Hospital Association Healthy Hospital Employee Survey (Ontario Hospital Association, 2003). Most recently, the report Stepping to Success and Sustainability: An Analysis of Ontario's Nursing Workforce (O'Brien-Pallas, Thomson, Alksnis, Luba, Pagniello, Ray, & Meyer, 2003) addresses nurse supply, nurse distribution and utilization, demand for nursing services, and projections for future nursing needs. Six recommendations to deal with the potential for nursing shortfall and stabilization of Ontario's nursing supply include: 1) assess the population's ongoing and future need for services; 2) increase enrolments in nursing programs; 3) increase nurse participation rates (retention) and make more effective use of existing nurses; 4) avoid using layoffs to deal with short term financial problems; 5) address workload issues and provide quality workplaces; and 6) work on an HHRP framework taking into account the link between work environments, the ability to recruit and retain nurses, and population health outcomes.

3.1.2.f Quebec

Quebec chose not to participate in the Nursing Strategy for Canada and Canadian Nursing Advisory Committee; however, the province shared its data and best practices for the projects. There are no reports of nursing studies or nursing strategies available in Quebec's grey literature.
3.1.2.g New Brunswick

Findings from a recently released report indicate that there is currently a shortage of LPNs in New Brunswick and that 20% of the LPN workforce works greater than one full-time equivalent (FTE) (Fujitsu, 2002). This situation could potentially become exacerbated depending on the RN/LPN skill mix variations that are implemented. It was also indicated that nearly 26% of the RN workforce is currently working at more than one FTE and the current shortage of RNs threatens to double between now and 2007.

3.1.2.h Prince Edward Island

The Prince Edward Island Advisory Committee on Health Human Resources released a report in late 2001 that detailed supply and demand issues for RNs in the province (DMR Consulting, 2001). The Health Human Resources Supply and Demand Analysis Final Report detailed many demographic features about the province's RN population and included projected forecasts for the RN workforce. The findings indicated that nursing shortages would occur between the years 2001 and 2006. Prince Edward Island has released a recruitment and retention strategy for the province (PEI Health and Social Services, 2004). Relief support of nurses is a goal of the strategy to be accomplished by increasing the number of new graduates in the province.

3.1.2.i Nova Scotia

In 2001, Nova Scotia announced a strategy to set a direction for nursing recruitment, retention and renewal (Nova Scotia Department of Health, 2001). By 2007, almost $60 million will have been invested to support the Nursing Strategy. The key elements of the strategy were: support for practicing and student nurses; enhancing recruitment resources in the province; full utilization of RN and LPN scopes of practice; and workforce development. The most recent update in 2003 (Nova Scotia Department of Health, 2003) indicated that the Nursing Strategy is incorporating priority areas identified through the CNAC report: leadership development, optimum scope of practice, and rural and remote nursing recruitment and retention. Recruitment efforts in Nova Scotia are evident in co-op education programs; nursing job fairs; LPN and RN re-entry programs for those who want training to re-enter the workforce; relocation allowances for nurses who come to Nova Scotia; and increased numbers of RN and LPN seats available in universities and colleges. Retention and renewal strategies include a leadership conference to RNs and LPNs in Nova Scotia and a Nursing Grants Program to help nurses undertake short-term projects to enhance nursing practice and patient care, improve the quality of work life, and promote innovation and creativity. Data shows that the Nursing Strategy has been successful (Nova Scotia Department of Health, 2003). The overall number of employed nurses is higher in 2004 than it was in 2001. Of these, significantly more are employed in permanent versus casual positions. In addition, Nova Scotia is currently retaining over 80% of its new graduates, about 90% of whom have found full-time employment.

3.1.2.j Newfoundland and Labrador

Reports from Newfoundland and Labrador include both survey results of nurses and nurse employers as well as data from employment insurance claims for RNs and LPNs. Employers and new graduates completed a survey to assess the perceptions of preparedness of new graduates upon entering
the workforce (Newfoundland and Labrador Health Boards Association, 2002). Both the LPN and RN employment insurance claims and sick leave claims were reviewed between 1996 and 2000 to monitor attendance management programs (Newfoundland and Labrador Health Boards Association, 2001a & 2001b). In March 2004 supply reports for both RNs and LPNs were released for the years 2002 and 2003. The reports detail demographic characteristics of nurses in Newfoundland and Labrador over those years (Newfoundland and Labrador Health Boards Association, 2004a & 2004b). Newfoundland and Labrador has not yet released a nursing strategy addressing the recruitment and retention of RNs and LPNs in the province.

3.1.2.k Yukon

A nursing labour market study produced by Human Resources Development Canada in May, 2001 reviewed data to define the labour market need in the Yukon for RNs and LPNs and to determine the feasibility and extent to which local education should be provided to potential students (Hanson & Associates, 2001). Like the rest of the country, the Yukon is currently experiencing a nursing shortage and will face this ongoing and growing challenge in the future. To date, there is no record of a strategy to alleviate the looming shortage.

3.1.2.l Northwest Territories

The Northwest Territories have developed a comprehensive system-wide human resource plan with a number of strategies to improve health human resources planning and address current and future shortages. Some components of the plan include: developing a competency-based model for recruitment, training and supporting staff, establishing coordinated professional development programs, implementing a relief pool of nurses and a common HR tracking and information system (N.W.T. Health & Social Services, 2003).

3.1.2.m Nunavut

No studies or strategies addressing health human resources in Nunavut were located in the grey literature.

3.1.3 Update on the Federal Situation

The most recent update on the progress made at a federal, provincial/territorial and stakeholder level was discussed in the 2003 update on the Nursing Strategy for Canada (Health Canada, 2003). In addition to the formation of the Canadian Nursing Advisory Committee, progress has been made in the other areas such as human resource research and planning, appropriate education, deployment and retention. However, there is still a tremendous amount of work to be done.

To move forward with unified action for nursing human resources in Canada, dialogue on nursing issues in each provincial/territorial jurisdiction must continue. Health human resource data must be available and used to improve workforce planning. Canadian provinces and the federal government must collaborate to act on retention strategies and encourage nurses to re-enter the workforce guided by relevant recommendations from the CNAC report. Strategies must be improved to support nursing as a career
choice yet at the same time improve planning strategies to assess the impact of increases in nursing school seats. Unity and collaboration among the diverse research activities in nursing human resources must be achieved. We have to create ways to communicate results of workforce planning issues and forecasting tools to policy-makers and managers. It is also of tremendous importance to improve projections for health human resources through forecasting (Health Canada, 2003).

In the 2003 budget, the federal government committed $90 million over five years to improve national health human resource planning and coordination. Funding from the first year of this budget (2003-2004) was provided by the Office of Nursing Policy for six projects that are consistent with the health human resources issues and priorities identified in the Health Accord. Total funding was $2.2 million and all projects were completed as of March 31, 2004. These studies are incorporated into the relevant sections of this report.

3.2 Research Classification

Health care is at a stage of unprecedented change (Leatt & Porter, 2003). More than ever before the industry of health care is crying out for leadership in an extremely fast-paced environment that is demanding quality while at the same time demanding reduced costs and spending. Accountability, transparency and efficiency are now called for of the leaders of Canada's health care system (Romanow, 2002). Our system is characterized by cutbacks, downsizing in management, bed-closures, hospital closures, and care-giver burnout and shortages (Tamlyn & Myrick, 1995). There is a sense of despair and disillusionment in many health professions, including nursing. Burnout is prevalent and recruitment of health care providers is challenging (Simpson, Skelton-Green, Scott, & O'Brien-Pallas, 2002). Nurses are dissatisfied with their jobs and they are leaving the profession. Canada is in the midst of a nursing shortage crisis.

There is an enormous financial burden to the system as a result of this nursing shortage (Canadian Labour & Business Centre, 2002). For example, in 2001, the wage costs of nursing overtime in Canada was estimated to fall between $252.3 million and $430.78 million. Considering absence due to illness and injury, the costs during that same time period were estimated to be between $325 and $440 million, without taking into account the replacement costs which could lead upwards of $660 million per year. According to Kuhar, Miller, Spear, Ulreich and Mion (2004) when it comes to replacing nurses lost for any of a variety of reasons, a single nurse replacement can cost an organization up to $44,000. Beyond the financial burden is also the significant human costs of burnout, injury, and stress to the nursing profession (O'Brien-Pallas, 2002). There is a cost to the patient as well in terms of quality of care, patient safety, and health outcomes (McGillis Hall, Doran, Baker, Pink, Sidani, O'Brien-Pallas, & Donner, 2003). Increased recruitment, retention and satisfaction of nurses in the workplace should result in reduced employee absenteeism, turnover, and overtime costs in the long term, ultimately, leading to a health care system that is sustainable and focuses on improving health outcomes.

Research and evidence must be employed by policymakers to develop a health care system that is sustainable and meets the needs of the Canadian people. McGillis Hall et al. (2003) also identify nurse executives and senior hospital personnel as groups who can utilize research findings to improve
health, system, and employee outcomes. Roos and Shapiro (1999) discuss the complexities of applying research to policy but ultimately suggest that solid, critical methodology and the communication of clear, key messages provides the most useful direction for policymakers. Tomblin Murphy (2002) further supports the point that researchers must be meticulous in their methodology. The author goes on to point out that the clarification of the connection between statistical models and related theoretical frameworks are imperative to supporting and guiding solid methodology. With clarity of purpose and valid theoretical and statistical models, together with sound methodology, the dissemination and support of clear, key, meaningful messages to policy-makers should be possible.

A remarkable amount of research is being conducted to investigate the upstream and downstream reasons for nursing shortages. Nursing human resource research provides insight into ways to draw new nurses into the workforce and encourage those already there to stay. Based on the identified issues, some of the active and recently completed Canadian nursing research is listed below. It is anticipated that the list is not exhaustive and the report can be modified to reflect a more inclusive list once reviewed by the Steering Committee. It is important to note that information regarding purposes, status of research, or findings was not always available. The compilation of the research is organized around the following issues: nursing human resource modeling; entrance to nursing school; skill mix and work environment of nurses; nurse illness and disability levels; workplace-induced stress; and job satisfaction. Finally, studies investigating nursing database development and nurse and patient outcomes are described and provide more general information about a variety of nursing topics related to LPNs, RPNs, and RNs.
4. Literature Grouped by Issue

4.1 Forecasting with Health Human Resource Modeling

Health human resource planning and management are important and enduring issues for policy makers, health-care administrators, professional associations, unions, and health services and policy researchers. Most of the pressing health policy issues involve, in one way or another, HHR, a product of the fact that health care is human resource-intensive. It is not surprising, then, that HHR was identified as the number one research priority emerging from Listening for Direction, a strategic research priority-setting process undertaken in 2001 by CHSRF, the CIHR IHSPR (Institute of Health Services and Policy Research), the Canadian Coordinating Office for Health Technology Assessment, the Canadian Institute for Health Information, and the Federal/Provincial/Territorial Advisory Committee on Health Services. More recently HHR is identified as the priority issue in Listening for Directions II, undertaken in 2004 by CHSRF, the CIHR IHSPR, the Canadian Coordinating Office for Health Technology Assessment, the Canadian Institute for Health Information, Statistics Canada, and the Federal/Provincial/Territorial Advisory Committee on Governance and Accountability.

While policy-makers consistently identify HHR as a major priority area for health services research, the number of Canadian researchers active in this area is small, and there is no evidence that the numbers are growing at a rate commensurate with the importance or urgency of the area.

Historically, health human resource planning has been an underdeveloped area resulting in periods of surpluses and shortages of nurses in Canada. Methods for predicting human resource requirements are few in number and continue to be plagued with methodological and conceptual difficulties (O'Brien-Pallas, Birch, Baumann, & Tomblin Murphy, 2001). Currently this country finds itself in the midst of a nursing shortage. This is no small matter–nurses make up half of Canada's health care workforce (CIHI, 2001). They are a crucial part of the health sector workforce and nursing shortages have a tremendous impact on the quality of care.

HHR research and forecasting in Canada is often conducted based on incomplete data and at irregular intervals, which is partly to blame for the continuous cycles of over- and under-supply of nurses (O'Brien-Pallas et al., 1999). To ensure efficient and effective health human resource planning, our activities should be needs-based, responsive to change and outcomes-directed (O'Brien-Pallas, Birch, Baumann & Tomblin Murphy, 2001). Policy-makers, health care leaders, and researchers are interested in developing a meaningful, long-term approach to health human resource planning in nursing (O'Brien-Pallas et al., 2001; Tomblin Murphy & O'Brien-Pallas, 2002). Reliable evidence is crucial to provide the best possible resources for accurately predicting and planning for an ongoing, sustainable nursing workforce. The following section lists studies that are currently being conducted on nursing human resource forecasting and modeling.
(For details on acronyms used, please refer to Appendix A.)

4.1.1 Current Canadian Studies related to Nursing Human Resources Modeling

Carter, Busby, Gendreau, Lakats, & Soriano  
Home Care Strategic Planning Model  
Funded by: Simcoe County CCAC, Ontario Graduate Scholarship (1999-2001)  
Purpose: To develop a model that will estimate the total annual cost of providing a desired level and quality of home care service. The model included forecast estimates of future demand for home care, enables agencies to determine how much service can be delivered given existing funding levels and/or how much money/resource is required for a specified level of care and provides decision-makers with the quantitative analysis they require to make rational and equitable decisions concerning the allocation of home care resources.

Carter, O'Brien-Pallas, & Neuman  
Developing a Mathematical Model for Forecasting Nursing Human Resources in Ontario  
Funded by: NRU, University of Toronto site; NSERC Operating Grant & Graduate Scholarship (1999 - 2000)  
Purpose: To produce a forecast of future nursing human resources, under a wide variety of potential assumptions using a single model that incorporates all primary factors into one framework.

Deber, Williams, Kouri, & Conrad  
Do Regionalization Models Matter? Home Care Resource Allocation in Maritime Provinces  
Purpose: To compare how various health regions in the Maritime provinces allocate resources across health care sectors. This project examined whether resource allocation decision-making is affected by the varying configurations of services incorporated into regional budget envelopes.

McGillis Hall, Doran, & Laschinger  
Nursing Report 2002: Indicator Testing and Validation  
Funded by: MOHLTC and OHA (2002)  
Purpose: To introduce and structure a nursing perspective within the Hospital Report Series in Ontario. Nursing Report 2001 identified evidence-based indicators representative of nursing care through input from key stakeholders and leaders in nursing in Ontario. The 2002 report evaluated selected indicators for feasibility and validity.

O'Brien-Pallas, Tomblin Murphy, Birch, Thomson, Duffield, Alksnis Gunderson, Rootman, Pringle, Hughes, Pennock, Kephart, Hubert, Tomblin, Neville, Smadu, & Lemonde  
Health Human Resources Modeling: Challenging the Past, Creating the Future  
Funded by: CHSRF (2002 - 2005)  
Purpose: To enhance existing demographic-focused approaches to health human resources planning by moving beyond considerations of supply and utilization to consider the factors and shocks that influence the health system. Project 1 assesses changes in the levels and
distribution of health over time, providing an evidence base that allowed the matching of nurse resources to changing population health needs. Project 2 focuses on understanding the way other inputs constrain or enhance the rate of production of nurse human resources in the hospital sector. Project 3 assists in developing evidence-based strategies for retaining different target groups of nurses.

Status: in progress

Ritchie, Power, & Hughes
Predicting Needs for Nursing Services in Atlantic Canada
Purpose: To describe the health needs of patients with chronic kidney disease in Atlantic Canada in order to predict what level of nursing services they require. The study was also aimed at determining the strengths and limitations of data that could be used to develop an approach to nursing-resource planning that is based on the needs of patients. Finally, the investigators wanted to examine how a model for nursing resource planning that is based on the patients' needs changes human resource planning for kidney disease.
Status: completed
Findings: 1) patient needs-based HR planning is not feasible in Atlantic Canada and there was no evidence that a patient needs-based approach is a priority within the HR planning sector; 2) people living with end stage renal disease experience a very broad range of unmet personal health and health system needs; 3) the most important end stage renal disease patient needs to consider in needs-based HR planning are the number and severity of symptoms, the disease-effects on daily living, and the number of other health problems, and 4) HR information is not standardized or linked to patient databases.

Tomblin Murphy, O'Brien-Pallas, Birch, Pringle, Rootman, Darlington, Kephart, & Pennock
Health Human Resource Planning: An Examination of Relationships Among Nursing Service Utilization, and Estimate of Population Health and Overall Status Outcomes in the Province of Ontario
Funded by: CHSRF, MOHLTC, NSHRF, NRU - University of Toronto site (2000-2003)
Purpose: To explore the relationship among health status of Ontarians and self-reported use of nursing and hospital services and nursing service utilization as reported in data in community hospitals in Ontario. Analysis explored the relationship between nursing service utilization and variations in mortality, unexplained readmission, length of stay, and patient satisfaction.
Status: completed
Findings: The findings suggest that decisions about the deployment of nursing resources are associated with differences in outcomes. Greater intensity of nursing resources is associated with shorter lengths of stay (other things being equal). There was no evidence that greater intensity of nursing resources resulted in poorer patient outcomes as measured by higher rates of readmission, lower levels of patient satisfaction, or lower levels of self reported health. This information is important to both health care managers and health human resource planners in considering the planning and use of health human resources.
Tomblin Murphy, O'Brien-Pallas, Birch, & Kephart

Hospital Service utilization: Implications for Nursing Human Resource Planning


Purpose: To examine needs-based HHR planning in all other Canadian provincial/territorial jurisdictions (Ontario was previously completed). The goal of this study is to develop and test a population health needs approach to establish, monitor, and predict nursing service needs at the population level. A systems framework was used to explore the relationship between the health needs of Canadians, their use of nursing and hospital services, and variations in outcomes.

Status: completed

Findings: There was no evidence that lower numbers of nights of stay were associated with lower levels of health status after controlling for other population based factors. It is important to note that the results reflect associations between variables and not cause-and-effect relationships; that is, they do not suggest that extra hospital bed days cause decreases in health status. Rather, they point to the existence of some relationship between extra hospital days and health status that is not captured by our models. Populations that have higher rates of chronic conditions (such as diabetes and heart disease) have higher numbers of hospital days, and numbers of hospital days differ by jurisdiction.

Zwarenstein, Cox

Demand for Cardiovascular Care in Canada and Modules to Use Available Human Resources to Best Deliver Care

Funded by: CHSRF (2004-2007)

Purpose: To examine future health human resource needs for managing acute myocardial infarction (AMI) and congestive heart failure (CHF). The overall approach involved four key steps one of which to examine the potential impact on staffing needs of aggressively implementing CHF clinics to reduce hospitalizations.

Status: in progress

4.2 Nursing School Entrance

The crisis of recruitment and retention of nurses in the health care workforce, along with the much publicized pitfalls of entering a profession characterized by work stress and job burn-out, contribute to a decrease in interest among potential entrants to the nursing profession. The current state of affairs in nursing does not represent an attractive future to bright young people who have an abundance of career choices before them. In combination with the tremendous losses of nurses following health care restructuring over the last 15 years, there was a drop in the number of Canadian nursing graduates from 9,000 in 1991 to 5,000 in 2001 (CNA, 2002).

The issue of career choice is not the only consideration when examining nursing school entrance as a factor in providing an ongoing appropriate number of nurses to sustain a quality health care system.
over time. The study of skill mix and its conclusions will also have great impact on what is determined to be the most appropriate education for an efficient and quality mix of nursing skills, as well as the number of seats needed to maintain this mix. Turning out the magic number and mix of nurses and other health care professionals and heath care workers is no easy task. O'Brien-Pallas points out “health-provider requirements will be determined by broader societal decisions concerning the commitment of resources, funding and delivery of programs, and level and mix of services” (O'Brien-Pallas, 2002, p.3). Only when we address the resource and worklife issues of nursing will we be able to offer an attractive and exciting career option for young, bright people entering the workforce. It is important to understand the factors that contribute to recruitment to nursing schools and the what the impact of nursing seat numbers will be on future nursing human resources. This is related to the capacity of universities and training institutions to produce nursing professionals, specifically in terms of space available for education. To determine the appropriate number and mix of educational resources we must first determine the appropriate number and mix of health care professionals and unregulated health care workers.

The following studies are related to entrance to Canadian nursing schools.

### 4.2.1 Current Canadian Studies related to Nursing School Entrance

**Dicenso, Woodward, & Hutchison**

*Development and Evaluation of an Ontario Training Centre in Health Services and Policy Research*

*Funded by:* CIHR (2002 - 2008)

*Purpose:* To build a critical mass of skilled, independent health service researchers, in Ontario and especially northern Ontario and ensure that the health services research conducted by these individuals meets the needs of health services policy makers, planners, and managers.

*Status:* in progress

**Hanvey**

*Men in Nursing*

*Funded by:* CNA

*Purpose:* To investigate the reasons that young men do, or do not, choose nursing as a field of study or profession. Focus groups were conducted with young men in high schools and young men enrolled in university or college nursing education programs. The purpose of the groups was to address the following general questions. What attracts young men to the profession of nursing/nursing schools? What deters them from choosing nursing as a field of study/profession? What could the profession do to attract men to nursing education and nursing? What challenges or supports exist for men who are in the nursing educational programs?

*Status:* in progress
Kazanjian, MacDonald, Wood, & Cole  
Nursing Workforce Study - Volume III: An Inventory of Nursing Program Enrolments and Graduates in Canada by Province/Territory, 1998 (2000)

**Purpose:** To describe the production of nursing personnel in Canada. A questionnaire was sent to provincial/territorial representatives of the Advisory Committee on Health Human Resources who were asked to complete the survey for all nursing education programs in their jurisdictions. The questionnaire requested information as to the type of credential offered, the length of the program, the number enrolled in each year of the program, the number of students enrolled full-time, part-time, or in distance education, and the number of graduates in 1997 and 1998. The analysis includes the impact of BN-only basic education for RNs.

**Status:** completed

McGuire  
Assess the Impact of Prior Learning Assessment and Recognition on the Ease of Admissibility and Placement into Educational Programs and Employment in Nursing.

**Funded by:** HRDC (2003-2006)

**Purpose:** To demonstrate the impacts of a comprehensive, systematic method of Prior Learning Assessment and Recognition (PLAR) to improve access to nursing education programs and accelerate graduation and employment of nurses into the labour force. The two main target groups of the research will be internationally educated nurses and licensed practical nurses.

**Status:** in progress

O’Brien-Pallas, Meyer, Alksnis, Tomblin Murphy, Williams, Thomson, Luba, & Lemonde  
Evaluation of Part One of Strategy 7 of Nursing Strategy for Canada

**Funded by:** Health Canada (2002)

**Purpose:** To evaluate whether nursing education seats “increased Canada-wide by at least 10% over 1998/99 levels over the next two years” for registered nurse, registered psychiatric nurse, and licensed practical nurse entry to practice programs. Publicly funded new entrant admission and quota data were collected and evaluated for this purpose. A secondary objective was to collect historical data from 1991 onwards and future quota until 2006/07. Data were also collected for post-RN degree, Masters in Nursing, and PhD in nursing programs.

**Status:** completed

Pringle  
Examining the Causes of Attrition from Schools of Nursing in Canada

**Funded by:** Health Canada (2003-2004)

**Purpose:** To examine the reasons why students studying in all three types of nursing preparation programs leave before finishing their programs. A complementary study will determine
actual retention rates (the obverse of attrition) of programs to prepare registered nurses, registered psychiatric nurses and licensed/registered practical nurses.

Status: completed
Findings: While about half the RN students found it relatively easy to leave and more than half had few regrets about leaving, only 15% of these LPN students found it easy and only 20% had few regrets. A much higher percent of the LPN students failed out of their programs than did RN students so they had no choice about leaving. The high level of regret may be a reflection of the loss of a dream that many LPN students had held for a long time and which they were not able to pursue.

Regan
New Graduate Registered Nurse Study - 2003
Purpose: To provide a longitudinal view of employment patterns, workplace attributes, career intent and mobility of new RN graduates between 2001 and 2003 in BC.
Status: in progress
Findings: due out in the fall of 2004

Regan
B.C. New Graduate Registered Nurses - 2002 Cohort - A Five Year Longitudinal Study
Funded by: RNABC (2003-2007)
Purpose: To collect longitudinal data on a cohort of RN graduates in 2002 at three time points to provide information about employment patterns, workplace attributes and the link to retention, career intent and mobility of new graduates.
Status: in progress

Williams, Murphy, & Meyer
Development of a Nursing Education Database for Ontario and Analysis of 2000 Data
Purpose: To expand and continue a previous project that analyzed the capacity of Ontario university and college nursing programs to support the new entry to practice requirement for RNs and to develop a valid and reliable nursing education database to report on past, current, and future supply of RNs and LPNs in Ontario.
Status: completed

Williams & O'Brien-Pallas
Comparative Analysis of University and College Program Capacity Issues Related to the New Entry to Practice Requirements
Funded by: The Council of Ontario University Programs in Nursing, the Heads of Nursing & the Heads of Health Sciences from the Colleges of Applied Arts and Technology (2000)
Purpose: This is the second phase of a project designed to provide supply information about numbers
of students and faculty and other capacity issues for the purpose of modeling HHR and to use the information obtained to explore capacity issues related to baccalaureate entry to practice. This project also provided a similar analysis of capacity issues in the college sector for 1998 followed by a detailed comparative analysis of both sectors.

**Status:** completed

### 4.3 Nursing Skill Mix and Staffing

“Skill mix” refers to the combination of a variety of different types of nurses and unregulated care workers that provide care for patients in hospitals. The impact of skill mix models on nursing human resources and health outcomes is very complex and warrants attention. Organizational goals and values must be clear to determine the most appropriate skill mix for a facility.

Currently, much of the literature indicates an association between a nursing staff comprised only of RNs and improved health outcomes, although the nature of the outcomes is not always clearly stated (Anderson et al., 1998; Blegen et al., 1998; Brown, 2001). Aiken, Clarke, Sloane, Sochalski, and Silber (2002) conclude in their research that surgical patients are more at risk for poor outcomes where the ratio of patients to nurses is high and that nurses are more likely to suffer from burnout and job dissatisfaction in this type of environment. Similarly, in Canada McGillis Hall and colleagues (2004) report that a higher proportion of professional nurses in the staff mix (RNs/RPNs) on medical and surgical units in Ontario teaching hospitals were associated with lower rates of medication errors and wound infections. Higher levels of patient complexity were associated with greater patient use of nursing care resources. Furthermore, in another study, a higher proportion of RNs/RPNs on inpatient units in Ontario teaching hospitals was associated with better clinical outcomes at the time of hospital discharge (McGillis Hall et al., 2003).

On the other hand, nurses have identified “non-nursing” duties and care as contributing to their dissatisfaction in the workplace and with their profession. As well, a more diverse skill mix may contribute to increased productivity and efficiency (Atkinson, 1993). According to Snow (2002), a well-utilized, diverse skill mix contributes to high function in a nursing unit. Many varieties of staff and skill mixes are employed in the hospital setting to assess the most efficient, flexible and cost-effective use of health personnel (McGillis Hall, 1997). Financial and human resource issues and goals must be balanced with skill mix options to achieve the best possible outcomes for the health outcomes for the patients, health care system, and health care professionals. The following studies are presented to offer some insight and information related the skill mix or staffing arrangement of the nursing workplace.

#### 4.3.1 Current Canadian Studies related to Nursing Skill Mix and Staffing

- **Aiken, Sochalski, Silber, Shamian, Anderson, Tu, Giovannetti, Clarke, Rafferty, Hunt, & Busse**
- **Outcomes of Hospital Staffing**
- **Funded by:** National Institute for Nursing Research and National Institutes for Health (1998-2001)
- **Purpose:** To determine the extent to which organizational attributes that affect nursing practice mediate the effects of nurse staffing on patient outcomes.
Status: completed
Findings: In hospitals with high patient-to-nurse ratios, surgical patients experience higher risk-adjusted 30-day mortality and failure-to-rescue rates, and nurses are more likely to experience burnout and job dissatisfaction.

Armstrong-Stassen & Wagar
The Long-Term Impact of Downsizing on the Individual, the Work Group, and the Organization
Funded by: SSHRC (1998 - 2001)
Purpose: To examine the long-term impact of organizational downsizing on individual functioning, work-group behaviour and organizational effectiveness within the manufacturing and government sectors. This work generated information on the long-term effects of downsizing on individual functioning; work-group and organizational effectiveness; the factors that influence effectiveness over time; and the steps that need to be taken to minimize the harmful effects often associated with downsizing.

Status: completed
Findings: Respondents in management positions reported significantly more positive attitudes toward their job and the organization than did respondents in non-management jobs. Compared with the initial phase of the downsizing, respondents reported a significant decrease in commitment to the organization 20 months later. For two dimensions of job insecurity, the perceived threat of job loss decreased, while a sense of powerlessness over decisions affecting the future of one's job increased. A major area of concern for management is the low level of organizational trust and morale reported by the respondents at both time periods.

Baumann, Zeytinoglu, Blythe, Denton, & O’Brien-Pallas
The New Health-Care Worker: The Implications of Changing Employment Patterns
Purpose: To explore the impact of current employment arrangements on the recruitment and retention of nurses. This exploratory study will result in a better understanding of the consequences of contemporary work arrangements. The findings will assist human resources decision-makers in creating employment arrangements that will benefit managers, nurses and ultimately patients.

Status: in progress

Besner, Doran, McGillis Hall, Giovannetti, Hill, Morrison, & Watson
A Systematic Approach to Maximizing Nursing Scopes of Practice
Purpose: To examine the extent to which nursing knowledge, education, and skills are fully utilized (scope of practice) by different categories of regulated nurses, specifically registered nurses, registered psychiatric nurses and licensed practical nurses.

Status: in progress
Duffield, O'Brien-Pallas, Diers, Aisbett, Hall, & King
Nursing Workload, Skill Mix and Models of Care Research
**Funded by:** Centre for Health Services Management, Centre for Health Economics Research and Evaluation (New South Wales Department of Health and Welfare) (2003)
**Purpose:** To establish the relationship between nursing skill mix and models of nursing care on patient outcomes, case-mix adjusted; and collect evidence on the impact of increased in-patient acuity and reduced length of stay on nurses' workload.
**Status:** completed
**Findings:** By the year 2004, approximately 4,139 nurses (registered and enrolled) will be lost through retirement at age 65 years. However, if nurses retire at age 58 years, the result is 7,328 lost by 2004. There is the potential to retain 2,139 nurses in this age group if strategies focus on delaying retirement.

Giovannetti, Wood, Smith, Jacobs, Estabrooks, Watson, Fassbender, Reimer, Tourangeau, & Duncan
**Funded by:** AHFMR (2001-2003)
**Purpose:** To determine the relationship between organizational climate, nurse staffing, and nurse and patient outcomes.
**Status:** completed
**Findings:** Using exploratory principal components analysis, with a forced one-factor solution, the practice environment index was obtained. In addition, key assumptions were tested from previous work about the rationale for the aggregation of NWI-R responses. In the Canadian context the one-factor solution provides a parsimonious index of the practice environment of registered nurses working in acute care hospitals. Further work is needed to determine the predictive capability of this index and its relevance to cross-national organizational contexts.

Hailey & Harstall
Nursing Skill Mix and Health Care Outcomes
**Funded by:** AHFMR (2001)
**Purpose:** To summarize the shared and unique competencies of RNs, RPNs, and LPNs, and review empirical literature that has examined the relationship between nurses and client/patient outcomes. The focus of this study was on the link between nursing skill mix and outcomes with an emphasis on the changes to the roles and competencies of LPNs in comparison with those of RNs and RPNs.
**Status:** completed
**Findings:** It was found that there is no published evidence to support an “appropriate ratio” of RNs to LPNs or other health care workers. Instead the influence of context, practice settings, and non-nursing staff on outcomes must be factored into skill mix decisions. Patient
needs change over time and as a result changes in skill mixes may need to be both time and case-mix sensitive. Staffing models may also be influenced by such factors as the health services delivered, patient/client loads, and acuity levels. Ongoing, specific evaluation is required to assess and adjust for the optimum staff mix, supports for care, and other aspects of care delivery that contribute to quality care outcomes.

**Doran & McCutcheon**  
The Impact of the Nurse Manager's Span of Control on Leadership & Performance  
**Funded by:** CHSRF, MOHLTC 2004  
**Purpose:** To examine the influence of the manager's span of control on nursing management leadership and performance and to investigate which leadership style contributes to optimum nurse, patient and unit outcomes under different levels of the manager's span of control.  
**Status:** completed

**Kazanjian, Rahim-Jamal, MacDonald, Wood, & Cole**  
**Purpose:** To examine employer practices and policies for nursing workforce deployment in each province/territory. A sample survey regarding deployment was undertaken using a questionnaire pertaining to all three regulated nursing groups: LPNs, RPNs, and RNs. The questionnaire was designed to capture the following information: hiring practices (amount of experience required, deployment, credentials, etc.); kinds of services provided and the skills perceived to be needed to provide those services; numbers and mix of nursing personnel used to provide services; use of unregulated health care workers in relation to nursing services provision; and anticipated changes in deployment practices related to changes in the organization of the health care delivery system.  
**Status:** completed

**Laporte, Deber, Baumann, & O'Brien-Pallas**  
Where Do Nurses Work? Work Setting and Work Choice  
**Funded by:** CIHR (2003-2005)  
**Status:** in progress

**Laschinger, Wong, Wilk, Armstrong-Stassen, Kerr, White, & Shamian**  
A Profile of the Structure and Impact of Nursing Management in Canadian Hospitals  
**Funded by:** CHSRF and in-kind from co-sponsors (2003-2006)  
**Purpose:** To profile nursing leadership/management structures in acute care hospitals across Canada  
**Status:** in progress
Laschinger, Finegan, Falk Rafael, & Havens
Workplace Empowerment of Health Professionals in Restructured Hospital Work Environments
Purpose: To investigate empowerment in nursing work environments using Rosabeth Moss Kanter's organizational empowerment theory and Kanter's theory in social work, nursing, occupational therapy, and physical therapy. It also investigated workplace predictors of occupational stress.
Status: completed
Findings: There was no support for the suggestion that male nurses are less empowered because of their “token” status. The model predicted the responses of men and women equally. The results suggest that empowerment provides an excellent way of enhancing organizational attitudes for both men and women.

McCutcheon, Doran, Evans, Macmillan, McGillis Hall, Pringle, & Smith
The Impact of the Managers' Span of Control on Nursing Management Leadership and Performance
Purpose: To investigate the impact of managers' span of control on leadership effectiveness, staff satisfaction, patient satisfaction, and nurse turnover.
Status: completed

McGillis Hall & Doran
A Study of the Impact of Nursing Staff Mix Models and Organizational Change Strategies on Patient, System and Nurse Outcomes
Funded by: CHSRF (2001)
Purpose: To describe the nature of the staff mix, and evaluate the impact of different staff mixes on patient, system and nurse outcomes.
Status: completed
Findings: The findings of this study have implications for nurses and their patients, and for decision makers who determine how to allocate resources. They found that staff mix and nursing roles affect patients' health significantly. Nurse's job satisfaction is also directly related to patients' satisfaction with nursing care. The study also found that the quality of care available affects both nurses and patients.

McGillis Hall, Pink, McKillop, O'Brien-Pallas, & Thomson
A Comparative Analysis of Models for Costing Nursing Services
Purpose: To examine the costing methodology employed for nursing services in Ontario and evaluate its relationship to actual nursing services utilization in the health care sector. Phase one identified types of nurse staffing models utilized in the Ontario hospitals, restructuring strategies used in reducing nursing costs, and mechanisms used to determine past and current nursing costs within these sites. Phase two examined the accuracy of data collected by
CIHI, OHRS, and OCCP for each of the study sites, determined whether inconsistencies exist, and validated the core data elements for use in this study. Phase three evaluated the relationship between nurse staffing and actual nursing costs reported to the government for funding nursing services, and the sensitivity of available data for costing nursing services in Ontario hospitals.

**Status:** in progress

**McGillis Hall, Pringle, Doran, Streiner, & Pink**  
*Nurse Staffing Models, Resident Outcomes and System Cost Outcomes in Long-Term Care*

**Funded by:** CIHR (2003)

**Purpose:** To sample senior nursing and/or human resources personnel to determine the nurse staffing models and the level of knowledge and skill of the nursing staff mix employed in each of their facilities, and the individual strategies and efforts employed by their organization to enhance the long-term care knowledge and skill development of the nursing staff.

**Status:** completed

**McGillis Hall, Doran, McCutcheon, O'Brien Pallas, Peterson, Pink, Rukholm, Thomson, Tranmer, Tregunno.**  
*Quality Worklife Indicators for Nursing Practice Environments in Ontario: Determining the Feasibility of Collecting Indicator Data*

**Funded by:** MOHLTC (2003)

**Purpose:** To conduct a critical review and analysis of the literature on input or structural variables in work settings that can be considered indicators of the quality of nurses' work life in health care settings in Ontario, and to conduct a pilot study to determine the feasibility of collecting data related to these indicators. Ultimately this research will inform decisions and recommendations regarding the complementary data required to link to the clinical outcome database being developed and tested in the Nursing and Health Outcomes Study.

**Status:** The phase one results of this critical synthesis of the literature are in the book, *Quality Work Environments for Nurse and Patient Safety*, available through Jones and Bartlett Publishers. Phase two is currently underway, and involves pilot testing of the instruments and mechanisms used to collect work life indicators for nursing to determine the feasibility of such data collection, in acute care, long-term care, complex continuing care, and homecare settings in Ontario, and the capacity for linkage to the outcomes data collected through the Nursing and Health Outcomes Study. Ultimately this research will inform decisions and recommendations regarding the complementary data required to link to the clinical outcome database being developed and tested in the Nursing and Health Outcomes Study.
McGilton, McGillis Hall, Pringle, O’Brien-Pallas, Krejci, & Williams
Identification and Testing of Factors that Influence Supervisors' Ability to Develop Supportive Relationships with their Staff
Purpose: To identify and describe the determinants of supportive supervisors' behaviour within long-term care facilities; refine supervisors' support scales developed in earlier work; and determine the effect of supportive supervisors on nursing and organizational outcomes.
Status: in progress

O’Brien-Pallas, Thomson, McGillis Hall, Pink, Tu, Kerr, Darlington, Aiken, & Sochalski
Evidence Based Standards for Measuring Nurse Staffing and Performance
Purpose: To develop and validate evidence-based, quality-adjusted ranges of staffing standards for cardiac and cardiovascular nursing services. The staffing methodology developed here can be adapted to other clinical settings.
Status: completed
Findings: 1) excessively high nursing unit productivity levels result in significantly worse patient, nurse and system outcomes; 2) productivity/utilization levels greater than 93% must be reduced to a target of 85%; 3) data should be routinely collected including: workload measurement, environmental complexity, nursing diagnosis, nurse and patient SF 12 health status, nurse-patient ratios and productivity/utilization; and 4) strategies to retain nurses must address the physical and mental health of nurses, balancing the efforts and rewards associated with work, nurse autonomy, full scope of practices, managerial relationships, innovative work schedules, hiring more nurses into full time positions, and reasonable nurse-to-patient ratios based on targeted productivity/utilization standards to minimize the impact of high job demands and reduce absenteeism and use of overtime.

Peachey & Weir
Impact of Nurse Managers/Leaders Empowering Behaviours on Staff Nurse Workplace Empowerment, Organizational Commitment, Absenteeism and Patient Outcomes
Funded by: NRU, McMaster University (2001 - 2002)
Purpose: To investigate the link between specific behaviours of nurse leaders and empowerment of staff nurses. Findings add to the understanding of the relationship of nurse managers' leadership behaviours and their impact on nurse effectiveness and adverse impact on the organization in terms of financial costs and quality of patient care.
Status: completed
Shamian & Thomson
Qualitative Analysis of the Free Text Comments from a Nursing Survey of Over 8,000 Acute Care Hospital RNs Conducted in 98/99
Funded by: NRU (2001)
Purpose: To explore the impact of hospital staffing and organizational characteristics on patient outcomes through information collected by survey in conjunction with an international research project. Comments made by nurses completing the survey provided a wealth of untapped information about nurse's perceptions of the work life environment, which adds to our understanding of their answers to the defined questions on the survey.
Status: completed

Tourangeau, Luba, Sidani, & Lemonde
Evaluation Study of a Leadership Development Intervention for Nurses
Purpose: To determine what affects participation in the Nursing Leadership Institute had on self-reported and observer-reported leadership practices of participants and what effects participation in the institute have on self-assessments of burnout reflected in self-reported levels of emotional exhaustion, sense of depersonalization, and feelings of personal accomplishment.
Status: completed
Findings: Results indicated that a concentrated, residential leadership development intervention is effective in strengthening leadership behaviours performed by both already established and aspiring nurse leaders from the perspective of observers, but not from self-reported assessments. No significant changes in self-reported burnout levels were found. It is possible to deliver leadership development interventions to both established and aspiring nurse leaders that result in fairly rapid improvements in observed leadership practices.

Tourangeau, Tu, Doran, Pringle, McGillis Hall, O'Brien-Pallas, Verma, & Lozon
Nurse Staffing and Work Environments: Relationships with Hospital-Level Outcomes
Funded by: CHSRF, MOHLTC, Nursing Research Fund (2005)
Purpose: To survey a sample of Ontario acute care hospital RNs and RPNs to determine their assessments of the nature of their work environments, their responses to these work environments, and their assessments of the outcomes of their work. Information derived from the survey will be used to determine specific objective Ontario acute care hospital characteristics (e.g., nursing skill mix, nursing dose, hospital location, patient days, hospital size) and outcomes (mortality rates, readmission rates, length of stay) for medical and surgical patients.
Status: in progress
4.4 Illness and Disability

Research has indicated that heavy workloads and nursing work environments that entail stress, long hours, injuries and poor relations with other professions can affect nurses’ physical and psychological health (Baumann et al., 2001). Nurses have always been concerned with hazardous job situations including exposure to hazardous or infectious agents, violent patients, heavy lifting and general physically demanding work (Shamian et al., 2001). Changes in the healthcare system including hospital restructuring and nursing shortages exacerbate the stress and strain nurses experience in their daily work. It is known that over the course of one year in Canada, more than 16 million nursing hours are lost to injury and illness and that in any given week 7.4% of all registered nurses (13,000) are absent from work due to injury, illness, burnout or disability (CLBC, 2002).

Long periods of job strain affect personal relationships and increase sick time, turnover and inefficiency (Baumann et al., 2001). Closely associated to job strain, the issue of workload cannot be understated; especially considering studies such as one in Ontario by O’Brien Pallas, Thompson, Alksnis, and Bruce (2001). This group found that nurses, particularly those working in emergency and medical surgical units, work at intensities that could potentially harm their own health. Nurses have been found to have higher rates of strains and sprains (Choi, Levitsky, Lloyd, & Stones, 1996) and there is evidence that nurses have higher overall musculoskeletal claim rates (Shamian et al., 2001). Factors such as job strain and poor organizational climate increase the rate of injury amongst nurses (Keohoorn, Kennedy, Demers, Hertzman, & Village, 1998) and have also been associated with 50% to 200% increases in the likelihood of needlestick injuries and near misses to hospital nurses (Clarke, Rockett, Sloane & Aiken, 2002).

Other studies have found that job strain exacerbates medical problems, and increases the risk of musculoskeletal injuries and accidents, burnout, illness, substance abuse and can lead to an increase in smoking (Bourbannais, Comeau, & Zina, 1999; Laschinger, Finegan, Shamian, & Almost, 2001; Schnall, Landsbergis, & Baker, 1994; Theorell, Ahlberg-Hulten, Jodko, Sigala, & de al Torre, 1993; Wheeler, 1997). Evidence also points to a relationship between the number of hours nurses work, and illness. Recent research has found an almost perfect correlation between hours of overtime worked and sick time (O’Brien-Pallas et al., 2001) and overtime is highly predictive of increased lost day injury claim rates among nurses (Shamian et al., 2001). Higher rates of absenteeism have been found to be associated with lower job satisfaction, longer shifts, working in acute care, and working full time (Zboril-Benson, 2002). In addition, in work by O’Brien-Pallas, Thompson, Alksnis and Bruce (2001) it was found that as hours of care per patient day increased, so did the overtime that nurses were asked to work and the incidence of missed shifts due to illness. It is also recognized that the most vulnerable segment of the nursing workforce are the older nurses. They are more susceptible to injury and illness. With the average age of nurses in Canada being just over 43 years, it is crucial that work environments and work loads are reduced to prevent further illness and disability in the most knowledgeable, experienced and productive members of the nursing profession.
Nursing has higher rates of disability than any other profession, which ultimately disrupts care and increases the overall cost for the health system (Baumann et al., 2001). Nurses' job-related injuries are more costly than those in occupations that entail high physical risk such as police and firefighters (Akyeampong, 1999). The economic implications for absenteeism due to illness and disability are severe. The cost of overtime, absentee wages and replacement for registered nurse absentees has been estimated to be between $962 million and $1.5 billion annually in Canada (CLBC, 2002). It is clear that illness and disability and the corresponding rates of absenteeism are factors of paramount importance to be considered in relation to recruiting and retaining a viable nursing workforce. The following list describes current Canadian research related to the health of nurses.

4.4.1 Current Canadian Studies related to Illness and Disability

Baumann, O'Brien-Pallas, Armstrong-Stassen, Blythe, Bourbonnais, Cameron, Doran, Kerr, McGillis Hall, Vézina, Butt, & Ryan

The Working Environment and Health of the Nursing Workforce - A Policy Synthesis

Funded by: CHSRF (2000 - 2001)

Purpose: To bring together research and experiential knowledge about nurses' health and well-being in the work environment. This project examined the impact of the working environment on the health of the nursing workforce (and hence, potentially, on patient outcomes).

Status: completed

Findings:
1) Canada's nursing shortage is at least in part due to a work environment that burns out the experienced and discourages new recruits; 2) job satisfaction levels of nursing staff has been shown to be a strong determinant of the overall satisfaction level of clients; 3) nurses who are greatly stressed and vulnerable to injury have a higher absentee and disability rate than almost any other profession, which disrupts care, makes planning difficult and costs the healthcare system a great deal of money; 4) increased workloads improve short-term productivity but increase long-term costs; 5) delegating more work to aides and unit clerks so nurses can concentrate on their patients reduces some of that stress; 6) nurses work best and have more loyalty to their employers when their expertise is respected, they have some control over their lives (such as the ability to set their own hours) and they are free to practise to the full scope of their education; 7) keeping staff is easier in a less-stressful, more supportive workplace, and good relations on the care-delivery team benefit patients and may even reduce death rate; and 8) reducing staff turnover could do much to improve the work atmosphere.

Burke & Greenglass

Hospital Restructuring and Nursing Staff Well-Being


Purpose: This study examined the impact of organizational transitions such as hospital restructuring on the well-being of nursing staff.

Status: completed

Findings: There were differences in the amount of variance accounted for in the burnout components
by stressors and resources. Stressors contributed most to emotional exhaustion and least to professional efficacy. Individual resources were more likely to contribute to professional efficacy and least to emotional exhaustion. Stressors and resources accounted for approximately equal amounts of variance in cynicism.

Denton, Zeytinoglu, & Webb
Organizational Change and the Health and Well-Being of Home Care Workers
Purpose: To study the impact of health care restructuring and other organizational changes on the mental and physical health of home care workers. This study provides new information to improve the prevention of work related injury and illnesses in home care work.
Status: completed
Findings: Occupational health problems experienced by home care workers in this study are preventable.

Fillion
A Description of the Sources of Stress for Palliative Care Nurses Caring for Cancer Patients outside the Hospital Environment
Purpose: The prime objective was to describe environmental and organizational sources of stress for palliative care nurses working in different settings and the conditions that help alleviate stress on nurses. The study's second objectives were: to describe why and how stress occurs in different workplaces and organizations; and, to describe the links between the causes of nurses' stress, nurses' work conditions, their perception of stress, their ability to adapt to stress, their emotional response to stress and their level of social support.
Status: in progress

Kerr, Laschinger , Thomson, O'Brien-Pallas, Shamian, McPherson, Koehoorn, Leclair, Aiken, & Sochalski
Monitoring the Health of Nurses in Canada
Purpose: To profile the major health problems of nurses in Canada and to describe the factors that contribute to these conditions, particularly those relating to hospital restructuring and organizational change. This was done with existing health information sources about nurses in Canada. Gaps in current data were used to identify the key individual, work, and organizational factors that should be collected on an ongoing basis in order to monitor the future health of Canadian nurses.
Status: completed
Kerr, Mustard, Franche, Laschinger, Shamian, & Schwartz
Exploring Stress Differences Between Full-Time and Part-Time Nurses
Purpose: To explore the differences in physiological stress levels, measured by mean salivary cortisol levels, between full and part-time nurses. More specifically the study was used to determine if any relationships exist between the major questionnaire instruments for work and life stressors and salivary cortisol.
Status: completed

Laschinger & Kerr
Predictors of Nurses’ Mental and Physical Health with a Climate of Hospital Restructuring: Pilot Testing a Model
Purpose: To test a theoretical model derived from the literature to explore the determinants of nurses' health that can inform policy makers and health care administrators in the development of evidence-based strategies to preserve and improve the health of nurses.
Status: completed

Peter
The Work Environment & Health of Home Care Nurses: Ethical Implications
Purpose: To explore ethical concerns in home care nursing, specifically with respect to the work environment and health of home care nurses in a manner that is sensitive to historical dimensions and insights.
Status: completed

Shamian, O'Brien-Pallas , Kerr, Koehoorn, Thomson, Alksnis, Aiken, Hogg-Johnson, Shannon, & Sochalski
Effects of Job Strain, Hospital Organizational Factors and Individual Characteristics on Work-Related Disability Among Nurses
Funded by: Ontario WSIB (1999 - 2001)
Purpose: To develop recommendations for job strain and organizational interventions aimed at preventing or reducing work-related risk factors that can be shared with stakeholders in order to improve the work life and health of Ontario RNs.
Status: completed
Findings: Injuries among nurses are costly to hospitals in terms of lost productivity, disruption to work flow and claims paid, as well as to nurses in terms of pain, stress and possible loss of employment.
Tranmer, Arthur, Hamilton, Adams, Groll, O'Callaghan, Parry, Day, & Bart

Quality of Life and Caregiver Burden in Patients Over 75 Years of Age Treated for Coronary Artery Disease

Funded by: Heart and Stroke Foundation (2002 - 2005)

Purpose: To systematically measure with validated instruments quality of life outcomes, including health related quality of life, disease-specific quality of life, age-related quality of life and level of symptom distress in patients 75 years of age and older treated for Coronary Artery Disease (CAD) with Coronary Artery Bypass Grafting (CABG) surgery, percutaneous intervention (PCI) or medication only from pre-treatment to one year post-treatment.

Status: in progress

Yassi & Ostry

Caring for the Caregivers of “Alternative Level of Care” Patients: The Impact of Healthcare Organization on Nurse Health, Well-being, Recruitment and Retention in the South Fraser Health Region of British Columbia


Purpose: To identify organizational differences in the healthcare of non-acute illness patients who occupy acute-care beds in the four acute-care facilities of the South Fraser health region in BC. The study also identified and compared organizational factors that affect nurse well-being and injury rates, as well as administrative ability to retain and recruit nurses on alternative level of care and non-alternative level of care patient wards

Status: completed

Findings: The way in which care is organized for alternate level patients has an important effect on the risk of injury and job satisfaction for nurses

4.5 Stress and Satisfaction

The nursing shortage in Canada is due, in part, to intense and complex work environments that burn out nurses and discourage new recruits. Research has suggested that nurses suffer the highest levels of stress of all health professionals (Sullivan, Kerr, & Ibrahim, 1999). High levels of stress affect nurse job satisfaction, which in turn contributes to the high turnover rate of nurses currently being experienced (Baumann et al., 2001). The work concerns of nurses must be addressed in order to recruit and retain these professionals in a system that is committed to providing quality health care (O'Brien-Pallas, 2002). To put this in perspective, Aiken et al. (2001) suggested that one-third of nurses in Canada are dissatisfied with their jobs, and only one-third thought that there were enough nurses to provide high quality care for their patients. Factors such as control over practice and workload with the freedom to function independently to the full scope of their training, control over scheduling, and nursing leadership have been identified as key determinants of job satisfaction (Baumann et al., 2001; Davidson, Folcarelli, Crawford, Duprat, & Clifford, 1997; Bratt, Broome, Kelber, & Lostocco, 2000; Vetter, Felice & Ingersoll, 2001).
Negative impacts on job satisfaction are system-level and organizational factors that have resulted in a general belief by nurses that they are accorded little respect and that their contribution to patient care is undervalued (Baumann et al., 2001). In health care organizations today, nurses' holistic model of caring is often superceded by a treatment-oriented medical model (Baumann, Deber, Silverman, & Mallette, 1998). Nurses become discouraged when their intense workloads allow for only the performance of tasks related to patients' immediate physical needs (Blythe, Baumann, & Giovanetti, 2001) contributing to high levels of job dissatisfaction. The reduction of support staff and the consequent increase in non-nursing work, inadequate nurse deployment practices, decreased professional development opportunities and the eradication of many senior nurse leadership positions in health care organizations has also played a role in decreasing job satisfaction considerably (CNAC, 2002). Strong and effective leadership is required to increase the satisfaction nurses have with their jobs, and to help reduce work related stress. It is clear in the literature that nurse leaders who foster work environments in which nurses feel valued, involved and supported can influence the job satisfaction levels of nurses and impact upon turnover rates (Baumann et al., 2001; Boyle, Bott, Hansen, Woods, & Tautton, 1999; Kramer & Schmalenberg, 2003).

Bratt, Broome, Kelber and Lostocco (2000) looked at the relationship between job stress and job satisfaction and found that job stress and nursing leadership are the most influential variables in the explanation of job satisfaction. Baumann et al. (2001) identified several studies that show that good nursing leaders can increase group cohesion and ameliorate job stress, indicating that leadership that supports and empowers nurses reduces turnover. This is supported by other studies that suggest workplace empowerment strongly influences job strain and job satisfaction amongst nurses (Baguley, 1999; Laschinger, Finegan, Shamian, & Wilk, 2001; Spence Laschinger, Finegan, & Shamian, 2001).

Remuneration is another issue that influences nurse satisfaction. Some studies reveal that organizational and work characteristics have a stronger relationship with job satisfaction than economic variables (Bloom, Alexander, & Nuchols, 1992; Irvine & Evans, 1995). Others support a relationship between nurses' job satisfaction and satisfaction with pay; however, it is noted that the money only becomes an issue in the absence of other sources of satisfaction (Irvine & Evans, 1992). On another level, there is also evidence that the level of satisfaction nurses have with their jobs can impact on the satisfaction of patients. As reported by Weisman and Nathanson (1985), job satisfaction level of nursing staff was the strongest determinant of the aggregate satisfaction level of clients. Though the number of variables seems large, addressing these identified critical areas may promote autonomy and stronger leadership in the profession. The following is a list of current Canadian research being conducted to determine what affects the stress levels, job satisfaction and ultimately retention on Canadian nurses.

4.5.1 Current Canadian Studies related to Stress and Satisfaction

Aboriginal Nurses Association of Canada
Survey of Nurses in Isolated First Nations Communities: Recruitment and Retention Issues
Funded by: Health Canada (2000)
Purpose: To gather information in two key areas from nurses who worked, or are currently working, in isolated First Nations communities. The first was to distinguish the characteristics of
nurses who remain in isolated and northern communities for longer periods of employment from those who leave. The second key area of investigation was to identify factors that motivate nurses to work in isolated First Nations communities, to remain, or to leave.

**Status:** completed

**Findings:** The final report published in 2001 revealed that the challenge of attracting and retaining nurses to work in isolated First Nations communities requires the consideration of a complex set of inter-related factors. These factors include the nurse, the community residents, the community supports and infrastructure and the employers.

**Bakker, Fitch, Green, Butler, Olsen, Cummings, & Conlon**

Understanding the Factors That Influence Recruitment and Retention of Oncology Nurses

**Funded by:** CHSRF, MOHLTC, Canadian Association of Nurses in Oncology (2003-2006)

**Purpose:** To engage decision-makers and oncology nurses in actions toward improving oncology nursing work environments, producing information about how workplace, professional practice and knowledge transition factors influence the working lives of oncology nurses, and developing strategies that will strengthen practice environments and contribute to human resource planning in oncology nursing.

**Status:** in progress

**Canadian Nurses Association**

Effects of Changing Nursing Scope of Practice

**Funded by:** CNA (2002-2004)

**Purpose:** To document the effects of changing nurse scope of practice. These effects include quality assurance indicators (nursing sensitive patient outcomes); changes in quality practice settings and nurse job satisfaction, nursing outcomes and interdisciplinary collaboration.

**Status:** in progress

**Gagnon**

Work Satisfaction and Nurse Retention: The Impact of Leadership by Managing Nurses

**Funded by:** CHSRF & Fonds québécois de la recherche sur la société et la culture and Régie régionale de la santé et des services sociaux de Montréal-Centre (Report due in 2005)

**Purpose:** To generate new knowledge about the problem of nurse retention during system change. This project examines the impact of a “research-action” process - where team members participate in research from the design phase through to report writing and implementation. It examines the impact using “action learning,” which involves groups coming together, tackling real-life challenges, and learning from experience through reflection and action.

**Status:** in progress

**Findings:** Final report available November 14, 2005
Giovannetti, Estabrooks, & Hesketh
Alberta Nurse Survey of Hospital Characteristics
Funded by: AHFMR (2002)
Purpose: To answer many questions about different aspects of nursing work life including work environment and work structure, staffing on their last shift, their perceptions of professional burnout and job satisfaction, the quality of care they provide, and workplace violence.
Status: completed
Findings: Medical-surgical nurses reported poorer than average scores on many variables including practice environment, burnout, quality of care, prevalence of workplace violence and prevalence of adverse patient events. Casual job status is a growing trend in the nursing workforce. Time pressures do not allow nurses to complete basic nursing activities that contribute to quality care, improve comfort and reduce anxiety. Violence is a common occurrence in the hospital setting.

Health Quality Council
Purpose: To determine the effectiveness of the Quality Workplace Program to address retention of professional nursing staff in Saskatchewan by exploring the attributes of quality workplaces or magnet environments for nursing.
Status: completed
Findings: Improving working conditions of Saskatchewan front-line nurses appeared to improve their job satisfaction and sense of control. An improvement was found in nurses' perceptions about the quality of their working environments in the units where the new Quality Workplace Program was implemented. Most people interviewed as part of the study felt more positive about themselves, their colleagues, and their workplaces.

Kerr, Shamian, Thomson, O'Brien-Pallas, Sochalski, Aikens, Koehoorn, Hogg-Johnson, & Shannon
The Relationship Between Workplace Effort and Rewards and Various Outcomes Including Stress, in a Survey of Ontario Acute Care Hospitals
Funded by: HEALNet (1999 - 2001)
Purpose: To determine if there is an association between perceived efforts and rewards associated with work and the measurement of the key sub-scales of a work-related burnout scale within the acute care hospital nursing survey population in Ontario. Nurses reported high levels of absence due to burnout, musculoskeletal pain, and illness. An imbalance between the efforts and rewards associated with work were more likely to report all health problems examined.
Status: completed
Findings: There is a strong association established between work environment and burnout, and between burnout and the health of nurses.
Laschinger, Finegan, & Shamian  
Testing a Work Empowerment Model in Nursing Hospital Settings  
Funded by: SSHRC (1997 - 2001)  
Purpose: To investigate nursing work environments using Rosabeth Moss Kanter's organizational empowerment theory. This study provided more insight into the nature of power in nursing organizations. This study facilitates an understanding of the acquisition and use of power by nurses to better influence the health care system and control of nursing work. It is useful for nurse administrators concerned with the recruitment and retention of autonomous professional nurses.  
Status: completed  
Findings: Nurses with higher level of job strain were found to be significantly more empowered, more committed to the organization, and more satisfied with their work. Support for Karasek's Demands/Control theory was established in this study.

O'Brien-Pallas, Shamian, Tomblin Murphy, Alksnis, Birch, D'Amour, Laschinger, McGillis Hall, Thomson, & Verrier  
Understanding the Costs and Outcomes of Nurses' Turnover in Canadian Hospitals  
Funded by: CHSRF (2004-2007)  
Purpose: To determine how the rate and intensity of nursing turnover (the loss of human capital as providers leave and the lost productivity as new hires are oriented) impact patient satisfaction and safety, nurse satisfaction, health and safety, and system outcomes.  
Status: in progress

4.6 Nurse Retirement

Canada's health care system is experiencing a shortage of nurses that ultimately threatens the quality of patient care, and continues to exert more pressure on a profession already at its threshold. The nursing workforce is not sufficiently renewing itself and a large cohort of nurses will be retiring in the next 10 years. The average age of a registered nurse in Canada in 2000 was 43.3 years and almost half the nursing workforce is over the age of 45 (CIHI, 2001). Almost 30% of working nurses are over the age of 50 years, and in 2001 the average age of nurse educators was 49 years (CIHI, 2001). We know that most nurses choose to retire in their mid-fifties (O'Brien-Pallas & Baumann, 2001). It is clear that there are many nurses heading towards retirement in the next decade.

More recently, a joint study was done by the Canadian Institute for Health Information (CIHI) and the Nursing Effectiveness, Utilization and Outcomes Research Unit at the University of Toronto, to estimate the number of registered nurses aged 50 or older that will be lost to retirement or death by 2006 (O'Brien- Pallas et. al., 2003). It reports that nearly one-third of Canadian RNs in the workforce are aged 50 years or older, and will soon reach the typical retirement age of 65 years. This team used Vital Statistics data from Statistics Canada and data from the Registered Nurses Database (RNDB) at CIHI, to develop a cohort supply-based projection model to estimate the number of RN losses due to retirement.
or death. Projections were made for retirement at age 65 and at age 55, and a scenario was created to illustrate the potential effects of retention incentives. The expected number of losses is calculated for six regions of Canada (Atlantic, Quebec, Ontario, Manitoba/Saskatchewan, Alberta and British Columbia), and for four employment sectors (Hospital, Long-term Care, Community and Other Employment). Using an Index Ratio to measure the severity of losses, the total projected loss is reported as a percentage of the 2001 RN workforce, creating a standardized, comparable measure that can be used between regions.

Nearly half of all head nurses and supervisors will be leaving the workforce by 2010, leaving an even bigger void in nursing leadership (Association of Colleges of Applied Arts and Technology, 2001). Retirement of this generation of nurses will take with it the knowledge, experience and expertise necessary for the stability of the health care system when it leaves (CNAC, 2002). Merely replacing retiring nurses with new nurses will not resolve this issue. Several variables impact on nurse retirement including job satisfaction, risk or experience of illness, disability or injury, and workload. Experienced, older nurses find it particularly hard to sustain the intensive workload common to nursing practice today (Baumann et al., 2001). More experienced nurses have vast clinical experience that is useful to mentoring and administrative work, yet they still must provide direct patient care. Nurses who are nearing the end of their careers are also likely to have different needs and attitudes related to nursing work (Buchan, 1999).

Improved work life conditions in nurse practice environments are the incentives older nurses want. Study findings from the UK suggest that increasing recruitment and retention of nurses, and introducing improved compensation and benefit strategies may offset hospital nurse shortages in the short term but that is not enough for the long-term. Improvement of the quality of work life may be a more practical long-term approach to improving hospital nurse retention (Buchan, 1999). Flexibility in employment status—allowing older nurses to work part-time without losing benefits—is a potential solution for sustainability of the nursing workforce over time (CNAC, 2002). Given that there are few incentives currently for older nurses to remain in their jobs, special attention must be paid to the exacerbated effect that this early retirement will have on the workforce. It is of critical importance that the factors that affect early retirement be understood and addressed so that appropriate measures can be taken to retain aging nurses, the value of their experience and the knowledge that they offer to the profession. The following studies detail research related to the retirement of Canadian nurses.

### 4.6.1 Current Canadian Studies related to Nurse Retirement

**Armstrong-Stassen & Templer**

The Management of an Aging Workforce: an Assessment of How Well Employers are Meeting the Challenge

**Funded by:** University of Windsor Seed Grant (2000) and SSHRC (2001 - 2004)

**Purpose:** To determine the preparedness of employers to deal with the aging workforce. A questionnaire was developed to assess what human resource strategies employers currently have in place to meet the needs and preferences of older employees and what special human resource policies they expect to implement in the future.

**Status:** completed
Findings: Respondents in management positions reported significantly more positive attitudes toward their job and the organization than did respondents in non-management jobs. Compared with the initial phase of the downsizing, respondents reported a significant decrease in commitment to the organization 20 months later. For two dimensions of job insecurity, the perceived threat of job loss decreased, while the sense of powerlessness over decisions affecting the future of one's job increased. A major area of concern for management is the low level of organizational trust and morale reported by the respondents at both time periods.

O'Brien-Pallas, Alksnis, Wang, Birch, & Tomblin Murphy
RN Retirement Projections
Purpose: To contribute to nursing workforce planning by generating national and regional estimates of the number of RNs aged 50 or older that can be expected to leave the RN workforce by 2006. The estimates were compared by region and nursing employment sector to determine the relative severity of losses.
Status: completed
Findings: In Canada, nearly one-third of the RNs in the workforce are aged 50 or older and will reach the typical retirement age of 65 soon. An index ratio was developed to measure severity of losses. The expected number of losses is calculated for six regions of Canada. This report assists human resource planners by bringing the future into focus, understanding the severity and impact of retirements will have on the RN workforce and suggested policy strategies to deal with the losses.

4.7 Nursing Data and Outcomes Research

This section is dedicated to exploring the projects that have contributed to the enhancement of nursing relevant databases that are currently available in the country for nursing labour market sector studies. Studies included here describe nurse work life indicators, nursing sensitive indicators, and studies that incorporate nurse, system and patient outcomes. Quality research conducted incorporating comprehensive, reliable datasets is imperative for meaningful health human resource planning and policy development.

Nursing data is essential to implementing systematic standardized approaches to monitoring and analyzing trends in nursing as they relate to outcomes associated with the profession, the system and the patients they care for. In addition to establishing comparability of nursing data across clinical populations, settings, geographic areas and time, nursing data and outcomes sources also describe the nursing care of individuals, families and communities in a variety of settings. Moreover, nursing data demonstrates and projects trends regarding nursing care provided and allocation of nursing resources to patients or clients according to their health needs and their associated outcomes. The identification of existing sources of data will facilitate the stimulation of nursing research through linkages and partnerships. Ultimately,
access to data and information about nursing care will serve to influence practice, administrative and health policy decision-making.

### 4.7.1 Current Canadian Studies related to Nursing Data and Outcomes Research

**Baumann, Zeytinoglu, Blythe, Denton, & O'Brien-Pallas**  
*The New Health-care Worker: The Implications of Changing Employment*  
**Funded by:** CIHR (2001-2003)  
**Purpose:** To explore the impact of current employment arrangements on the recruitment and retention of nurses.  
**Status:** in progress

**Baumann, Mackay, Underwood, & Risk**  
*Quality Practice Setting Survey (QPaSS™) Tool Development*  
**Funded by:** NRU (2000 - 2002)  
**Purpose:** To develop and test the Quality Practice Setting Survey tool to be used to assess workplace attributes that support professional quality practice and provide the foundation for a report that is presented to the participants who filled out the survey.  
**Status:** completed

**Baumann, Crawford, Liodikas, Underwood**  
*Responses to QPaSS™ (Quality Practice Setting Survey)*  
**Funded by:** NRU (2002 - 2004)  
**Purpose:** To quantitatively and qualitatively analyze the data from the QPaSS™ survey responses to provide information for creation of public policy for nurses.  
**Status:** in progress

**Cameron & Armstrong-Stassen**  
*Investigation and Comparison of Critical Issues Facing Hospital and Community Health Nurses in Ontario*  
**Funded by:** MOHLTC (2000 - 2001)  
**Purpose:** To explore the workplace experiences of nurses in both hospital and community settings. Nurses completed questionnaires designed to measure selected organizational, interpersonal, and job-related characteristics in their employment.  
**Status:** completed

**Canadian Council on Health Services Accreditation**  
*Further Development of Work Life Indicators in Canada*  
**Funded by:** Health Canada (2003-2004)  
**Purpose:** To move the evaluation of work life standards and indicators forward rapidly and significantly. The work will be carried out in partnership with key stakeholders in the field and importantly, will extend CCHSA’s work beyond the nursing community to include all health professionals.  
**Status:** completed
Findings: There is value of the accreditation program to support improvements of work life in health services organizations. The recommendations for action to CCHSA have implications for the further development of CCHSA work life dimension and descriptors, as well as the work life-related accreditation standards, and the integration of important work life indicators into the accreditation program. In particular, these findings will provide guidance to the development of these elements.

Canadian Institute for Health Information
National Survey of the Work and Health of Nurses
Purpose: To identify relationships between selected health outcomes, the work environment and work life experiences of registered nurses, licensed practical nurses and registered psychiatric nurses across Canada. The survey will produce valuable information on the health and working conditions of nurses across Canada. The results will enable inter-provincial/territorial comparisons, and help to identify a baseline for monitoring of nurses' health in the future. The results will also contribute to the development of evidence-based workplace health strategies aimed at improving nurses' health and well-being, and support the development of appropriate government policies. The benefits of the survey will be evident when policy-makers and decision-makers use the results.
Status: in progress

Canadian Institute for Health Information
Purpose: To provide a reference document to assist health services planning and research. Time-specific personnel information for a number of health occupations is provided to aid governments, academics, professional health organizations, and researchers in better understanding Canadian health system employment trends. There are separate sections for each of the nursing professions: licensed practical nurses, registered nurses and registered psychiatric nurses.
Status: completed

Canadian Institute for Health Information
Purpose: To offer a comprehensive view of the Canadian licensed practical nurses workforce. Clear, objective data presentation and analysis for informed decision-making and policy formulation.
Status: completed
Canadian Institute for Health Information
**Purpose:**
To offer a comprehensive view of the Canadian registered nurses workforce. Clear, objective data presentation and analysis for informed decision-making and policy formulation.
**Status:**
completed

Canadian Institute for Health Information
**Purpose:**
To offer a comprehensive view of the Canadian registered psychiatric nurses workforce. Clear, objective data presentation and analysis for informed decision-making and policy formulation.
**Status:**
completed

Canadian Nurses Association, Canadian Association of Schools of Nursing, Canadian Healthcare Association, Canadian Federation of Nurses Unions, Canadian Practical Nurses Association, Registered Psychiatric Nurses of Canada, and the Academy of Canadian Executive Nurses
A Proposal to Support the Strategic Plan to Implement the Canadian Nursing Advisory Committee Recommendations
**Funded by:** Health Canada (2003-2004)
**Purpose:**
To facilitate the implementation of recommendations contained in the final report of the Canadian Nursing Advisory Committee (CNAC). The CNAC report, released by federal / provincial / territorial governments in 2002, includes 51 recommendations designed to improve the recruitment and retention of registered nurses, registered psychiatric nurses, and licensed practical nurses.
**Status:**
completed
**Findings:**
On the whole, there are positive signs that improvements in quality of nursing work life are occurring but these changes are not widespread. System-wide change requires that the barriers and supports identified in this study be addressed. Further analysis of the recommendations in the CNAC report is required to more clearly identify responsibilities and implementation mechanisms.

Doran, Harrison, Laschinger, Hirdes, Rukholm, Sidani, McGillis Hall, & Tourangeau
An Evaluation of the Feasibility of Instituting Data Collection of Nursing Sensitive Outcomes in Acute Care, Long-Term Care, Complex Continuing Care and Home Care
**Funded by:** MOHLTC (2002 - 2004)
**Purpose:**
To evaluate the feasibility, quality, and utility of instituting outcomes data collection for nursing-sensitive outcomes in acute care, long-term care, complex continuing care, and home care. Specifically this study was interested in determining the frequency and timing with which it is necessary to collect data on symptoms over the patient's health care stay for the purpose of outcomes assessment. They also were interested in assessing the training
requirements and resources required to institute nursing-sensitive outcomes assessment within the province of Ontario.

**Status:** in progress

**Edwards, Davies, Skelly, Ploeg, & Dobbins**  
**RNAO Best Practice Guidelines Project**  
**Funded by:** MOHLTC (2000 - 2003)  
**Purpose:** To evaluate the impact of the implementation of nursing practice guidelines into various clinical areas and settings. The reports outline the level of success in implementing the guidelines, barriers experienced, and impact on patient outcomes and quality of nursing work life.

**Status:** in progress

**Fisher, Baumann, & Blythe**  
**Nursing Vacancy Rates in Ontario**  
**Funded by:** MOHLTC (2001 - 2002)  
**Purpose:** To clarify and define the term “vacancy” as it applies to nursing and to quantify nursing vacancies in acute and long-term care settings in Ontario. A template was developed and evaluated by testing on a sample of acute care hospitals and long-term care institutions in the seven regions of Ontario. The template was used as a data collection instrument in an Ontario-wide study to quantify the number of nursing vacancies.

**Status:** completed

**Doran, O'Brien-Pallas, Sidani, McGillis Hall, Petryshen, Hawkins, & Watt-Watson**  
**The Relationship between Patient and System Outcomes and the Quality of Nursing Care in Acute Care Hospitals**  
**Funded by:** NHRDP (1998 - 2001)  
**Purpose:** To examine content validity, internal consistency, and inter-rater reliability (where applicable) of the research instruments and to evaluate the relationships between the structure, process, and nurse-sensitive patient outcomes variables identified in the conceptual framework through a parsimonious model.

**Status:** completed  
**Findings:** Internal consistency reliability ranged from .76 to .94 for the eight subscales of the SF-36. Internal consistency reliability ranged from .47 to .82 for the nine subscales of the QOLPSV. The subscales of both instruments had minimal problems with missing responses. The SF-36 was found to be more sensitive than the QOLPSV to change over time. In addition, the subscales of the SF-36 were found to be more sensitive than the subscales of the QOLPSV to several of the nursing variables, such as intensity of the patient's condition and nursing skill mix.
Doran, Pickard, Harris, Coyte, Macrae, Laschinger, & Darlington
Management and Delivery of Community Services in Ontario: Impact on the Quality of Care and Quality of Worklife of Community Based Nurses
Purpose: Phase one objectives were to: assess the extent of private sector involvement in the delivery of home care nursing services; describe the method for contracting professional nursing services within the 43 Ontario Community Care Access Centres; describe the method for monitoring service agreements; and refine the variables and sampling strategy for phase two. Phase two objectives examined the relationship between contract structural variables and variables for: quality of care (process), client outcome, cost, and nurse outcome.
Status: in progress

Doran, Sidani, McGillis Hall, Watt-Watson, Mallette, & Laschinger
Nursing Sensitive Outcomes: A Literature Synthesis
Funded by: MOHLTC (2001)
Purpose: To identify the essential characteristics or attributes defining each outcome concept, the instruments which have been used to measure each outcome concept in acute, community, and long-term care settings. It was recommended that a nursing job satisfaction pilot study be conducted in Ontario, using multiple measures to determine the “best” in progress measure for nursing job satisfaction. The instruments suggested for use in this pilot study included two nursing occupation-specific measures, the McCloskey/Mueller Satisfaction Scale (MMSS) and the Nursing Job Satisfaction Scale (NJS), and the work-related satisfaction measure, the Job Descriptive Index (JDI).
Status: completed

Kazanjian, Rahim-Jamal, Wood, & MacDonald
Nursing Workforce Study - Volume I: Demographic Context and Health System Structure for Nursing Services in Canada (2000)
Purpose: To provide a general overview of demographic and system changes. This study describes the current demographic context for nursing practice and the structure of provincial/territorial health care delivery systems.
Status: completed

Kazanjian, Wood, Yip, Rahim-Jamal, & MacDonald
Nursing Workforce Study - Volume II: The Supply of Nursing Personnel in Canada (2000)
Purpose: To examine data on the supply of nursing personnel in the provinces and territories to provide basic information about employment status, deployment (place of employment, area of responsibility, type of position, hours worked), age, and type and place of education/training. The analysis is based on data collected by the respective regulatory bodies in their registration and renewal processes.
Status: completed
Kerr, Lemire Rodger, Laschinger, Hepburn, Mayrand Leclerc, Gilbert, Murray, & O'Brien-Pallas

Adopting a Common Nursing Practice Model across a Recently Merged Multi-Site Hospital

Funded by: CHSRF with additions from the Change Foundation and the MOHLTC and in-kind contribution from The Ottawa Hospital (2002 - 2005)

Purpose: To determine the multilevel impact of adopting a new, common clinical practice model for nursing care across three recently merged campuses of The Ottawa Hospital. Three main research questions were addressed. What are the effects of introducing a new model for nursing care on nurse work stress and nurse well-being? What are the effects of introducing the new nursing care model on organizational climate, at both the unit and hospital (site) levels? And, what are the effects of introducing the new nursing care model on quality of patient care? Given the extent of hospital restructuring across Canada, by examining a hospital in the process of a substantial merger will help to demonstrate how adopting a standard model of nursing care will impact on nurse well-being, organizational climate, and nurse-sensitive patient outcomes.

Status: in progress

Laschinger & McGillis Hall

Patient Satisfaction with Nursing Care in a Sample of Ontario Hospitals: A Sub-Component of Hospital Reports 2002


Purpose: Patient satisfaction with nursing care quality is an important indicator of the quality of care provided in hospitals. This study tested a newly developed patient-centered measure of patient satisfaction with nursing care quality within a random sample of 14 hospitals in Ontario, Canada.

Status: completed


MacLeod, Medves, Kulig, Stewart, & Pitblado

The Nature of Nursing Practice in Rural and Remote Canada


Purpose: To describe and examine the nature of registered nursing practice in primary care, acute care, community health, continuing care (home care) and long-term care settings in rural and remote Canada. What is nursing really like in these communities? How can nurses best be educated and supported in their work?

Status: in progress

Findings: Preliminary report entitled Supply and Distribution of RNs in Rural and Small Town Canada released in 2002 compares age, education, gender, provincial migration patterns, international nursing graduates, nurse to population ratios and absolute numbers of nurses between rural and urban areas. The survey and qualitative research results were expected to be released in the autumn of 2004.
Maslove & Fooks
Progress Report on Implementing the Final Report of the Canadian Nursing Advisory Committee
Purpose: To learn what actions have been taken across the country to strengthen the nursing workforce since the release of the Canadian Nursing Advisory Committee (CNAC) Report.
Status: completed
Findings: There are positive signs that improvements in quality of nursing work life are occurring but these changes are not widespread. System-wide change requires that the barriers and supports identified in this study be addressed. Further analysis of the recommendations in the CNAC report is required to more clearly identify responsibilities and implementation mechanisms.

Mantler, Armstrong-Stassen, Cameron, & Horsburgh
The Impact of Hiring Incentives on the Retention of Hospital Staff Nurses
Funded by: SSHRC (2002 - 2005)
Purpose: To examine the impact of recruitment incentives on the commitment and retention of currently employed nurses and to make recommendations regarding the use of incentives for recruitment and retention.
Status: in progress

McGillis Hall, Waddell, Donner, & Wheeler
Outcomes of a Career Development Program for Registered Nurses at the Hospital for Sick Children
Funded by: Ryerson Polytechnic University (2000)
Purpose: To examine the impact of a career planning and development program (CPDP) for registered nurses (RNs) on nurse and system outcomes. The specific objectives of the study were: (1) to assess whether there was a significant improvement in the nurse outcomes of career decision making self-efficacy and job satisfaction following participation in a CPDP; and (2) to assess whether there is a significant improvement in the system outcomes of absenteism and organizational commitment following participation in a CPDP.
Status: completed
Findings: Nursing Economics, forthcoming, Sept 2004

McGillis Hall, Doran, & Sidani
Development and Testing of Quality Work Environments for Nursing
Purpose: To assist nurse executives to develop effective strategies for improving the quality of work life of nurses working in acute care settings in a sample of hospitals in Ontario. Evaluation of the impact of initiatives on patient, system quality, and nurse outcomes was used.
Status: completed
McGillis Hall, Doran, Laschinger, Mallette, & O'Brien-Pallas  
Nursing Report 2001 (A Component of Hospital Report 2001)  
**Funded by:** MOHLTC (2001)  
**Purpose:** To introduce and structure a nursing perspective within the Hospital Report and test a set of measurable indicators for nursing in Ontario. The goal was to identify indicators for inclusion in a system-level nursing report within the framework for a balanced scorecard and propose definitions and potential data sources for these indicators.  
**Status:** completed

McGillis Hall, Doran, & Laschinger  
Hospital Reports: 2002 and Beyond - Nursing Component  
**Funded by:** MOHLTC (2002)  
**Purpose:** To introduce and structure a nursing perspective within the Hospital Reports series in Ontario. In the first year of the project, evidence-based indicators representative of nursing care were identified with input from key stakeholders and leaders in nursing in Ontario. In this second year, these indicators were tested for feasibility and validity.  
**Status:** completed  
**Findings:** Nursing Report 2001 identified evidence-based indicators representative of nursing care through input from key stakeholders and leaders in nursing in Ontario.

Nagle & Clarke  
Assessing the Availability of Informatics Education for Canadian Nurses - Educational Institution Component  
**Funded by:** Office of Health Information Highway, Health Canada (2002 - 2003)  
**Purpose:** To describe and enhance the informatics education opportunities currently available to nursing students across the country, the level of preparedness of nursing faculties to deliver these offerings, and the ICT infrastructure and support for faculties in delivering offerings.  
**Status:** in progress

O'Brien-Pallas, Alksnis, Tomblin Murphy, Birch, Baumann, Luba & Meyer  
Development of a Health Human Resource Database for Nursing  
**Funded by:** MOHLTC (1999 - 2004)  
**Purpose:** To determine strengths and weaknesses of current databases and test and validate current HHR modeling by conducting a situational analysis to determine the factors that influence nursing and HHR activities in Ontario. The project defines the current practice demands and resource utilizations of restructured settings.  
**Status:** in progress
Tourangeau, Tu, Doran, Pringle, O'Brien-Pallas, & McGillis Hall  
Nursing and other Determinants of Hospital Level Outcomes such as 30-Day Mortality and Readmission Rates  
Funded by: CIHR (2002 - 2005)  
Purpose: To propose and test theoretical models describing relationships between nursing-related and other hospital characteristics with two hospital quality-of-care indicators: 30-day mortality and 30-day readmission rates. Findings will be used to develop decision-assisting tools for hospitals to use when planning strategies aimed at improving 30-day mortality and unplanned readmission rates.  
Status: in progress
5. Implications and Recommendations

It remains a challenge to identify the nursing labour market sector research presently being funded across the country. Most of the research in the Nursing Labour Market Sector examines RNs only, with few studies related to RPNs and LPNs. Based on the findings of Step I, it is evident that many studies go unnoticed if they are not published in scholarly journals or on Internet sites. Many key stakeholders continue to struggle as they attempt to identify ongoing work in nursing human resources research.

To maintain a comprehensive compilation of current Nursing Labour Market Sector research it is important that nursing stakeholder groups take the necessary leadership, allocate resources, and contribute information about the research they are conducting. Research funding agencies and governments at the federal and provincial/territorial jurisdictional levels are generously funding research in this area of inquiry. Moreover, the Canadian Institute for Health Information, Canadian Health Services Research Foundation, Canadian Institute for Health Research, Social Sciences and Humanities Council, Statistics Canada, and Health Canada are increasingly committed to funding nursing research. Professional associations, unions, and regulatory bodies remain interested and committed to learning more about these issues and to find the necessary evidence to drive decision making in the nursing labour market. It is anticipated that this report can evolve as additional research are published in the grey and white literature. It is essential that there be mechanisms in place to facilitate this ongoing collection and analysis of related work to guide meaningful policy in this country.

5.1 Recommendations

It is a challenge to identify research related to the nursing labour market sector presently funded in Canada. It is also noteworthy that most of the research to date focuses on RNs only, with a few studies related to RPNs and LPNs.

A mechanism should be implemented to facilitate the ongoing compilation and analysis of related research to inform nursing related policy making in this country. This mechanism will require both leadership and resources.

Regular updates and additions of new and ongoing research and their findings to this communication tool by nursing stakeholder groups will be essential to its success in meeting the intended goals of the project.

Evidence specific to RNs, RPNs and LPNs and their distinct contributions to and unique positions in the health care system must be added to the inventory as it is funded and carried out. It is imperative that the outcomes related to each nursing group are distinguishable and recognized for their roles in HHRP.

5.2 Limitations

This document is a compilation of current or recently completed research. Most researchers do not publish data, results and recommendations through formal avenues of research publication such as
scholarly journals until several months after the research has been completed. However, current research activities are often recorded in the grey literature, on the Internet for instance, or discussed in personal communication between stakeholders in the nursing research community. When working with grey literature, several limitations can be identified.

1. Grey literature is not well covered by the usual electronic databases or standard publication channels and so it is less readily identified and accessed than conventionally published literature (Isenberg, 1999; Soule & Ryan, 1995). Although this situation is changing as Internet distribution expands, it has been found that material on the web is frequently posted and removed at the discretion of site owners with little record of its existence.

2. While thousands of health-related organizations generate literature, only a fraction of that literature is relevant to the nursing stakeholder community.

3. Grey literature varies widely in quality and is seldom peer-reviewed (Soule & Ryan, 1995). These limitations place a significant burden on the traditional literature collection stage of the research cycle. Hence, those who wish to use grey literature as a source of information must be prepared to expend more resources in collecting and processing it than they would in the case of other published material (Soule & Ryan, 1995).

The key reason for pointing out the distinction between grey literature and conventional published materials is not, however, to focus on the unique problems it presents, but rather to highlight its value as an additional source of information. The nursing research community's interest in the grey literature stems from its potential as a source of credible information which can often be accessed faster and at a lower cost than through conventional mechanisms. The quality of information on the website is influenced by the resources available to the web owner to maintain current information. Visitors must critically appraise each website for the quality of the information available. The successful exploitation of grey literature to address nursing issues requires that the grey literature be part of an overall literature review strategy that includes making a thorough search of all available information sources (Helmer, Savoie, & Green, 1999; Weaver, Williams, Weightman, Kitcher, Temple, Jones, & Palmer, 2002). Researchers and policy makers must think about how grey information meets their information needs and in what subject areas it is likely to be most advantageous or productive (Soule & Ryan, 1995). They must also be aware that deficiencies in a compilation of research projects, such as this one, require constant additions and modifications as well and communication of research initiatives between the investigators and the authors of the compilation for the most complete and useful document to be achieved.
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Appendix A: Abbreviations and Symbols Used

AHFMR - Alberta Heritage Foundation for Medical Research
BC - British Columbia
BN - Bachelor of Nursing
CCAC - Community Care Access Centre
CCHSA - Canadian Council on Health Services Accreditation
CHSRF - Canadian Health Services Research Foundation
CIHR - Canadian Institute of Health Research
CLBA - Canadian Labour & Business Centre
CNAC - Canadian Nursing Advisory Committee
CNF - Canadian Nurses Foundation
ESRD - End Stage Renal Disease
HEALNet - Health Evidence Applications & Evidence Linkage
HHR - Health Human Resources
HHRP - Health Human Resource Planning
HR - Human Resources
HRDC - Human Resources Development Canada
IHSPR - Institute of Health Services and Policy Research
LPN - Licensed Practical Nurse
RPN - Registered Psychiatric Nurse
MOHLTC - Ministry of Health and Long Term Care (Ontario)
NHRDP - National Health Research and Development Program
NRU - Nursing Effectiveness Utilization and Outcomes Research Unit
NSERC - National Science and Engineering Research Council
NSHRF - Nova Scotia Health Research Foundation
NWT - Northwest Territories
OHA - Ontario Hospital Association
PEI - Prince Edward Island
RN - Registered Nurse
RNABC - Registered Nurses Association of British Columbia
SSHRC - Social Sciences and Humanities Research Council
WSIB - Workplace Safety & Insurance Board
THE RESEARCH TEAM

The Nursing Effectiveness, Utilization and Outcomes Research Unit (NRU) has been engaged by The Nursing Sector Study Corporation to conduct research and prepare ensuing reports for Building the Future. The NRU is a network of researchers located in several provinces. The co-directors are as follows.

Linda O'Brien-Pallas RN, PhD  
Co-Principal Investigator, NRU  
University of Toronto

Andrea Baumann RN, PhD  
Co-Principal Investigator, NRU  
McMaster University

Collectively NRU investigators have established reputations for conducting high quality research on a variety of issues related to nursing and health human resources. Nationally and internationally, the team has established extensive contacts in education, management, research, practice and policy development.

AUTHORS' BIOGRAPHIES

Gail Tomblin Murphy, PhD(c)  
Associate Professor, School of Nursing and  
Department of Community Health and  
Epidemiology, Dalhousie University and  
Co-Investigator NHSRU, University of Toronto.

Gail brings expertise in health human resource planning with mounting expertise in needs-based approaches to health human resource planning, demand forecasting models, and testing health service delivery models. She has extensive experience working with policy-makers and senior decision makers in Nova Scotia, Newfoundland and Labrador, Prince Edward Island, New Brunswick, Quebec, Ontario, Saskatchewan, Alberta, and British Columbia. During the Commission on the Future of Health Care in Canada, she was invited by Commissioner Romanow to chair a national roundtable on HHRP, to co-author a discussion paper on HHRP for the Commission, and to participate in a roundtable discussion of experts convened in Nova Scotia. Her research has garnered wide-spread interest from governments and other stakeholders because of its potential to significantly impact HHRP policy in Canada. Gail is well funded in health services and health human resource planning research funding from both national and jurisdictional funding agencies, and ministries of health. She co-leads a research team consisting of clinicians, healthcare leaders, policymakers, and researchers from federal and eleven jurisdictional governments, universities and healthcare organizations. A variety of disciplines including nursing, medicine, political science, psychology, bioethics, health economics, labour economics, demography, geography, biostatistics, community health, and epidemiology, and health services administration are represented on this team in order to bring the necessary experience to examine this very complex area of inquiry. Furthermore, a collaboration with Dr. Linda O'Brien-Pallas and Dr. Stephen Birch, has resulted in a conceptual framework for health human resource planning and health policy planning. Gail was recently appointed by CIHR (IHSPR) and CHSRF to the role of Science Lead for HHR.
Catherine Butler, BA, BScN, RN  
Professional Practice Leader Capital District Health Authority in Halifax, NS.

Catherine specializes in addressing professional practice issues. In this role she has gained expertise in issue resolution, nursing leadership development, and organizational policy development. Additionally she acts as a consultant to the organization on matters related to patient and family-centred care, work redesign and nursing governance models.

Catherine is also a Sessional Lecturer at the Dalhousie University School of Health Sciences where she teaches senior students on healthcare leadership. In addition, she is also enrolled in the Master of Health Services Administration program at Dalhousie University. Her specific interests are in the realm of health policy development and analysis and the intersection of health policy and law, and healthcare and nursing leadership.

Sarah Maaten, BSc, MSc  
Research Analyst, Population Health Research Unit, Dalhousie University

Sarah is a recent graduate of the MSc program in Community Health & Epidemiology at Dalhousie University. Her main research focus has been health services research in chronic disease and health human resource modeling with a particular interest in analytical methods. Sarah was a recipient of the NSHRF Student Research Award in 2001 for her investigation of health service use related to risk factors for chronic disease.

Ronda Smith, RN, MN(c)  
Perinatal Nurse Consultant, Reproductive Care Program of Nova Scotia

In addition to being involved in the development and dissemination of clinical standards and guidelines for the perinatal population, clinical audit and peer review with maternity care providers of all disciplines, continuing education, and the management of the Atlee perinatal database and its associated activities, Ronda is currently enrolled in the Masters in Nursing program at Dalhousie University. Her study interests involve nursing human resource planning and the nursing labour market.