

HEALTH CARE HUMAN RESOURCE SECTOR COUNCIL

A Study of Health Human Resources in Nova Scotia 2003



HEALTH CARE HUMAN RESOURCE SECTOR COUNCIL

A Study of Health Human Resources in Nova Scotia 2003



TABLE OF CONTENTS

Acknowledgements	4	4. Health Human Resources in Nova Scotia	
Executive Summary	5	4.1 Health Providers	42
1. Mandate and Methodology		4.2 A Changing Health Industry	43
1.1 The Mandate	19	4.3 Characteristics of the Nova Scotia Health Care Workforce	43
1.2 The Methodology	19	4.3.1 Sex Distribution	45
1.2.1 Conceptual Approach	19	4.3.2 Age Distribution	46
1.2.2 Project Methodology	20	4.3.3 Geographic Distribution	47
1.2.3 Data Methodology	21	4.3.4 Occupational Growth in Nova Scotia	48
1.2.4 Data Challenges	23	4.3.5 Health Workers per Capita – Where Nova Scotia Stands	49
2. Health Human Resources in Context		4.3.6 Education Levels	49
2.1 National Initiatives in Canada	26	4.3.7 Mobility	50
2.2 Provincial HHR Initiatives in Canada	27	4.4 Workforce Characteristics – Snapshot by Employment Setting	51
2.3 Nova Scotia’s HHR Planning Initiatives	28	4.4.1 Acute Care (Hospitals)	51
2.4 Atlantic Canada’s HHR Planning Initiatives	29	4.4.2 Mental Health Services	52
3. The Health Care Environment		4.4.3 Public Health	53
3.1 Emerging Health Care Challenges	29	4.4.4 Addiction Services	54
3.2 An Evolving System of Service Delivery	30	4.4.5 Long Term Care (Nursing Homes)	54
3.2.1 Primary Care Reform	31	4.4.6 Home Care/Home Support	55
3.2.2 The Nova Scotia Response	31	4.4.7 Residential Care Facilities	56
3.2.3 Demographics – An Aging Population	32	4.4.8 Community Based Options	57
3.3 Funding Health Care and Human Resources (DOH)	33	4.5 Supply Issues	58
3.3.1 Expenditure Patterns	33	4.5.1 Declining Supply	58
3.3.2 Expenditure Levels	34	4.5.2 Impact of Impending Retirements	60
3.3.3 Financial Impact of Aging Population	35	4.5.3 Increasing Proportions of Females	61
3.3.4 Federal Health Transfers	36	4.5.4 Geographic Distribution	62
3.3.5 Public Private Split	37	4.5.5 Recruiting and Retaining New Graduates	63
3.3.6 Impact in Health Human Resources	37	4.5.6 Changing Employment Settings	64
3.4 Regulation of Health Occupations	38	4.5.7 Shortage of Qualifications	65
3.4.1 Overview of Health Occupation Regulation	38	4.5.8 Measuring the ‘Inflow and Outflow’ of Health Care Workers	65
3.4.2 The Regulation of Health Occupations in Nova Scotia	38	5. Educating Nova Scotia’s Health Workforce	
3.4.3 Issues and Trends in Health Occupation Legislation	39	5.1 Introduction	66
3.4.4 Continuing Competence	42	5.2 Forces Shaping Change in Health Care Education and Training	67
		5.2.1 Aging Population	67
		5.2.2 New Models of Health Care Delivery	67
		5.2.3 Innovations in Technology	68
		5.2.4 Regulatory Environment	69
		5.2.5 Competition and Choices	69
		5.2.6 Enrolment Trends in Canada	70

5.3 Characteristics of Health Care Education and Training	72	7. Bringing It Together - Moving Toward Integrated HHR Planning	102
5.3.1 Programs Offered in Nova Scotia	72	7.1 Challenges for Future Planning	103
5.3.2 Programs not Offered in Nova Scotia	72	7.1.1 Articulation of Service Delivery Requirements	
5.3.3 Enrolment Characteristics of NS Programs	73	to Guide Long-Term Planning	103
5.3.4 Funding Post Secondary Education	76	7.1.2 Effective Linkages and Co-Ordination	103
5.3.5 Clinical Placement and Preceptor Capacity	78	7.1.3 Improving Data and Accountability Measures	104
5.3.6 Recruiting for Health Discipline Programs in Nova Scotia	78	7.2 Next Steps – Where to from Here?	104
5.3.7 Continuing Education	80		
6. Working in Health Care		CONTRIBUTING CONTACTS	105
6.1 The ‘Quality’ of Worklife in Health Care	81	BIBLIOGRAPHY	108
6.1.1 Defining and Measuring Quality of Working Life in Health Care	81		
6.2 The ‘Health’ of Nova Scotia’s Health Care Workforce	82		
6.2.1 Absenteeism	82		
6.2.2 Workplace Injuries Workers Compensation Board	84		
6.2.3 Workplace Sick Time	86		
6.2.4 Employment Insurance	88		
6.3 Working Overtime	89		
6.3.1 Overtime – Acute Care (hospitals)	89		
6.3.2 Overtime - Continuing Care	90		
6.4 Employment Status	90		
6.4.1 Acute Care, Mental Health, Public Health and Addictions	91		
6.4.2 Continuing Care	91		
6.4.3 Employment Status by Occupation	92		
6.5 Employment Trends and Issues	93		
6.5.1 Changing Lifestyle Expectations	93		
6.5.2 Workload Issues	94		
6.5.3 Public and Professional Identity	95		
6.5.4 Compensation Related Issues	96		
6.5.5 Public Private Competition	97		
6.5.6 Professional Development	98		
6.5.7 Orientation to Care	98		
6.5.8 Scopes of Practice	99		
6.5.9 Leadership Development	102		

ACKNOWLEDGEMENTS

I would like to acknowledge and thank the many individuals that contributed toward the production of this report. In particular, Dr Tom Ward, the Deputy Minister of Health, who was the genesis, and is the executive sponsor for this project. His strategic direction, patience and support proved invaluable for the progression of this project.

As well, Ms Catherine Arseneau, Executive Director of the Health Care Human Resource Sector Council is deserving of a special thank you and appreciation, for having provided her ongoing encouragement and smile throughout all of our challenges.

The completion of this report was enabled through the assistance and contribution of many individuals working in the health sector in Nova Scotia, and through the financial support of Human Resources Development Canada.

The Health Human Resource Planning and Steering Committee helped in an advisory capacity and with the overall direction and guidance for this project. The Department of Health and specific individuals there that are too numerous to cite, consistently extended assistance over and above that required.

The Board of the Health Care Human Resource Sector Council and its staff were responsive to our every request.

This report is a synthesis of facts, analysis and expert opinion, supported with documented research. Key informants and representatives from multiple organizations supplied a wealth of both qualitative and quantitative data. As well, they provided a critical role in filling the knowledge gaps, and provided insight, interpretation and validation, to the greatest extent possible, to our findings. They kept us grounded, and helped us achieve the reality of what was doable.

And last, but foremost, the project team of people that gave true meaning to the word "team", through their unique perspectives and complementary expertise.

Kindest Regards,

Ms Maureen Connolly, Project Manager

EXECUTIVE SUMMARY

Health care is mainly about people – people receiving care and the people who give it. Over 50,000 Nova Scotians make their living working in the health industry. Seventy cents out of every dollar spent on health care goes to paying the wages, salaries and fees of health care providers. In spite of the size and importance of the health care workforce, government has traditionally known relatively little about this vital human resource. This report attempts to fill in a knowledge gap and assist in the creation of a foundation for Health Human Resource (HHR) planning.

The Study of Health Human Resources in Nova Scotia is a Human Resources Development Canada (HRDC) funded project initiated in 2001 as a joint undertaking between the Health Care Human Resource Sector Council (HCHRSC) and the Nova Scotia Department of Health (DOH). A better understanding of the health care workforce provides the baseline for future planning of Nova Scotia's Human Resources for Health.

Research for the report was conducted in consultation with employers, professional and provider associations, industry/labour organizations, universities, colleges and various other governments. The report provides a comprehensive picture of HHR in Nova Scotia, a snapshot of the number of people working in each health occupation and health care setting; education and training characteristics; age, gender and other demographics, and workplace injury and illness information. A total of 31 health occupations were profiled, including the 19 regulated professions. The report sets out the changing environment in which health care providers are operating in Nova Scotia– including regulatory changes, funding challenges, an aging population and new ways of delivering health care. This report also presents a compilation of professional and workplace issues, as viewed by Nova Scotia's health occupations.

Chapter One sets out the mandate, approach and methodology for the study. The mandate was to provide a detailed baseline assessment of Nova Scotia's HHR and identify emerging trends and issues. The project methodology was adapted from a framework developed by Thomas Hall, and employed by the World Health Organization (WHO), which identifies the key elements for optimizing HHR as:

- Workforce planning for short and long term needs;
- Production of the health care workforce through education and training; and
- Management of human resources to recruit and retain workers.

An early discovery in the data collection process was a lack of reliable data on health workers. Because most organizations could not provide the information needed to profile the health workforce, less than 20% of the data came from existing sources. The remaining 80% came from primary research in the field.

Data was gathered and processed in three categories – supply, education/training and management/employment. Quantitative supply data was obtained through regulatory bodies and health care provider associations, and from various government departments, such as, the Department of Health and the Department of Community Services. From a qualitative perspective interviews were conducted with key informants to identify key HHR issues for each occupation.

Collection of data on education/training involved meetings with administrators, department heads and faculty at the seven institutions responsible for delivering health education and training programs in Nova Scotia. Data from the Department of Education and the Maritime Provinces Higher Education Commission (MPHEC) was used to provide trend data and to supplement more recent enrolment and graduation information provided by the post-secondary institutions. From a qualitative perspective, key informant interviews were documented and reviewed for common themes. A validation process was undertaken involving the institutions, agencies and organizations which provided the initial data.

Professional and provider associations, and individual employers were consulted to obtain information on the employment characteristics of health care workers. A template of management/employment indicators was developed and distributed for data collection to acute care and continuing care facilities and organizations. Health workforce employment information was also obtained from the Management Information System (MIS) at the Department of Health, the Nova Scotia Association of Health Organizations (NSAHO), Human Resources Development Canada (HRDC), and the Workers' Compensation Board (WCB).

Chapter One ends with a discussion of some of the data challenges encountered and their likely impact for HHR planning.

Chapter Two reports briefly on the state of HHR planning provincially, nationally and internationally. It points out that at all levels planning has traditionally been limited to physicians and nurses, with little attention paid to other health occupations and to the role of the unregulated and unpaid health care providers. A review of HHR planning in several countries released in March 2003 by the Canadian Health Services Research Foundation (CHSRF) found that:

- All had partial approaches to planning, ignoring the relationships between health professionals;
- All have experienced cycles of shortages and surpluses of health professionals, usually nurses;
- Supply problems are perpetuated by poor access to information, weak management and no system of continuing education and re-accreditation; and
- Little attention is paid to the distribution of medical and nursing staff between specialties and regions.

Governments in Canada formally recognized the issues surrounding HHR in September 2000 when first ministers agreed to coordinate their efforts on the supply of doctors, nurses and other health care personnel. This was followed up in 2001 when provincial premiers agreed to improve planning and co-operation on training and recruitment. A number of national HHR studies are underway, including a study of physicians by the Canadian Medical Forum, the three-phase Home Care Resources Study and HRDC studies on nursing, oral health, pharmacy and social work.

Despite this activity, both the Commission on the Future of Health Care in Canada (the Romanow Commission) and the Senate Committee on Social Affairs, Science and Technology (Kirby Committee) found that HHR planning in Canada is plagued with many of the same problems identified internationally by the CHSRF, including:

- Inadequate consideration of population demographics and trends, the broader determinants of health, specific needs of patients or the skills and knowledge of health care providers
- Planning approaches are often based on one-time estimates focusing on a single discipline and policies often focus on quick-fix solutions; and
- Lack of planning often leads to over-use of casual and part time workers, potentially contributing to a decline in productivity and one's work life.

Both Romanow and Kirby called for coordinated national action to bring about better collection and dissemination of information on trends in supply, distribution, mobility and workforce composition. Governments were also urged to better co-ordinate retention strategies, licensing and immigration requirements, and to devise strategies for increasing the supply of health care professionals from under-represented groups.

Although national co-ordination is lacking, provincial governments, including Nova Scotia, have responded in similar ways to shortages. Efforts have usually been directed at nurses and physicians, but the emergence of shortages in other occupations has led some jurisdictions to broaden their efforts. The most common strategy by provinces has been to increase funding for the education and training of more doctors, nurses or allied health occupations. Incentives, including bursary and debt repayment plans, and return for service agreements have been used to encourage enrolments. Relocation grants and signing bonuses have been employed to attract professionals into practicing in Nova Scotia. More recently, greater attention has been paid to quality of work life issues, especially as they relate to nurses and physicians practicing in rural and remote communities. However, the effectiveness of these various recruitment and retention efforts are difficult to measure, since they have often been implemented without an evaluation framework.

The report notes that since 2001 Nova Scotia and the other Atlantic Provinces have been taking a more comprehensive approach to HHR. Strategies have been devised to deal with shortages among physicians, nurses and other occupations (medical laboratory technologists, advanced care paramedics, and others), as part of a better understanding obtained from recent undertakings of HHR baseline assessments of major health occupations in each province. In addition, the Atlantic provinces are collaborating on a joint proposal to HRDC to conduct an in-depth examination of education and training capacity and planning for health disciplines at the Atlantic level.

Chapter Three contains an overview of the changing health care environment and the way in which key factors such as technology, demographics, fiscal pressures and regulation are affecting or will affect future HHR planning. One of the changes discussed is the *focus on wellness*, which represents a new way of thinking about health and health care delivery. Health is seen as "more than an absence of disease, (but) as a resource for everyday living." Greater emphasis is placed on the determinants of health – a clean environment, nutritious food, economic security and a healthy lifestyle. Perhaps the most important social and cultural change is that health care delivery is moving away from a focus on hospitals and doctors. The new model reflects an integrated, community-based approach. Its focus is on a team-based, shared care model of service delivery.

The report notes that in response to the focus on wellness, Nova Scotia has already progressed some way along the path to primary care reform with the decentralization of health system governance and the Strengthening Primary Care Initiative. In May 2003 Nova Scotia's Advisory Committee on Primary Health Care Renewal recommended an incremental approach to primary health care reform that would lead

eventually to a primary health care system offering health and social services ranging from basic emergency service and treatment of common diseases and injuries, to child development and nutrition programs. Although it will be some time before such a model is fully implemented, the direction of health care planning toward community-based models is clear. This will pose a new challenge for HHR planning – encouraging health care providers to adapt to changing roles, re-examine their scopes of practice and acquire the skills necessary for a new system of service delivery. New demands that may be made of health providers include:

- Greater acceptance of change in work routines;
- Changed relationships with other health providers;
- Better understanding of team behaviors; and
- Ability to form partnerships with families, community members or complementary providers.

Policy makers will also face new challenges. They will need to ensure their HHR education and training will have to reflect new methods of service delivery policies include all members of the health care team. And as the Romanow Commission has suggested, “sensitive issues such as wage settlements, scopes of practice and working conditions will need to be addressed in an open and direct way.”

Technology is already having a major impact on health care delivery, but has even greater potential to improve health outcomes, particularly in the realm of information technology. In particular, electronic health records – currently used by only a small fraction of health providers – will allow for better diagnosis and treatment of patients. At the same time these technological advances will create ethical issues in areas like biotechnology and patient privacy.

The impact of *demographics*, specifically the aging population, is discussed in two contexts. First, the fact that the percentage of Nova Scotia’s 65+ senior population is projected to nearly double to 25% in 2026 will have an impact on health care delivery. More resources will be devoted to treating elderly related diseases like Alzheimer and dementia, to procedures like joint replacements and to services such as home care, long term care and other personal care services linked to a decrease in one’s independence with aging. Secondly, the sheer volume of the aging population is likely to drive up health care costs. Per capita health spending for seniors in 2001 was more than three times the average of \$3,304 for Nova Scotia’s population as a whole, and for the very old, 85+ years, it was eight times more. In light of such figures, it has been suggested that the aging population will threaten the sustainability of the health care system. On the other hand, today’s over-65 population is healthier and less costly to care for on an individual basis than in the past. In any event, the health system has a decade or so to prepare for the arrival of the first large cohort of “baby boomers”.

The *fiscal pressures* exerted by the aging population will be exacerbated by the system of federal health transfers to the Provinces. Currently, these transfers are provided for on a per capita basis, making no provision for the age structure or health status of the population. This type of funding is to the disadvantage of ‘older’ provinces like Nova Scotia with a 65+ population greater than the national average. Moreover, increasing fiscal pressures will result in governments demanding more accountability for money spent on health care. It adds up to a challenging environment for HHR planning in which fiscal responsibilities will have to be balanced with the need to provide competitive wages and other incentives to attract and retain adequate numbers of health care workers.

Chapter Three concludes with a discussion of the impact of *regulation and legislation* on HHR planning. Nineteen health occupations in Nova Scotia, accounting for 19,700 are subject to self-governing occupational regulation, and another ten or so occupations have requested it. Under self-governing regulation, authority is delegated by legislation to a regulatory body (often referred to as a professional college), which establishes entry level standards, codes of practice, continuing competence requirements and handles public complaints and disciplinary procedures.

A key component of health profession legislation is a practice definition outlining the tasks that licensed members of a profession may perform. Such definitions help to define an occupation’s scope of practice. Occupational regulation is done to protect the safety of the public. However, there are said to be a number of negative consequences associated with occupational legislation, including barriers to entry and mobility, inefficient use of human resources, higher costs and personnel shortages. There is some concern that overly rigid occupational regulation could hinder initiatives such as primary health care renewal, which require more collaborative working relationships and changes to scopes of practice among health professionals. One approach recently endorsed by Alberta, Ontario and British Columbia to expanding the scope of practice of health care workers is a controlled acts system that restricts to a particular occupation only areas of practice that carry serious risk of harm if performed incorrectly. All other activities can be legally performed by any occupation, subject to common rules that apply to all health professions.

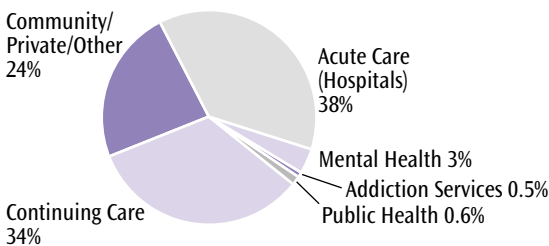
Chapter Four profiles Nova Scotia’s Health Human Resources – the size, occupational breakdown, age, sex and other key supply, education and employment characteristics of people employed in the health care workforce in this province. Only those providers working for pay are described in detail, even though there are many thousands of other unpaid individuals, family

members and volunteers who make up our 'human resources for health.' It has been estimated that Nova Scotia benefits from 140 million hours of volunteer work, or the full time equivalent of 70,000 volunteers working each year, many of those hours devoted to health care.

According to the Statistics Canada Labour Force Survey, Nova Scotia's health and social services industry totaled 52,900 people in 2002. It was the second largest industry (after retail), and represented about 12% of Nova Scotia's total workforce.

To obtain more detailed characteristics on the health workforce, it was necessary to gather information from other sources, including employers, District Health Authorities, the Departments of Health, Education and Community Services, regulatory bodies and professional/provider/employer associations and a range of other in-field data sources. From the data-gathering exercise associated with this in-field research, a health related workforce of 49,808 people, or 38,335 full time equivalents FTEs was identified (Figure E1).

Figure E1: The People Pie



The 'People Pie' shows workers were mainly employed in acute care hospitals (38%), continuing care (34%) and in community and private practice (24%) settings. A relatively small number of workers were employed in mental health (3%), addiction services (0.5%) and public health (0.6%).

Based upon the availability and accessibility of information, the health workforce was broken down into the following broad categories (Table E1):

Table E1: Health Human Resources Matrix

	Acute Care Hospitals	Mental Health	Public Health	Addiction Services	CONTINUING CARE				Community/Private/Other	Total
					Nursing Homes	Home Care/Home Support	RCFs	CBOs		
FTE	15,161	1,191	233	276	6,438	2,604	490	2,907	9,035	38,335
People	19,177	1,375	255	320	9,657	3,201	588	3,489	11,746	49,808
No./Person per FTE	1.3	1.2	1.1	1.2	1.5	1.2	1.2	1.2	1.3	1.3

Information on the health workforce yielded demographic and employment data on approximately 34,000 people, enabling profiles for 31 health occupations. Research revealed that ten health occupations made up more than 80% of this total. These included: registered nurses at 26%, followed by personal care workers/continuing care assistants at 12%, community residential workers at 10%, licensed practical nurses at 9%, physicians at 6%, home support workers/continuing care assistants at 6%, social workers at 4%, health service managers at 4%, medical laboratory technologists and technicians at 3% and pharmacists at 3%.

Research on sex distribution revealed that 84% of Nova Scotia's health workforce in 2001 was female. Seven of the top 10 health occupations were predominately female, ranging from 97% for personal care workers and home support workers to 75% for community residential workers. The three remaining top ten health occupations showed pharmacists with 65% female, health managers with 60% female and physicians with 31% female. Besides physicians, seven other health occupations were dominated by males, ranging from dental technicians with 81% male to opticians with 53% male. By employment setting, females made up 83% of the workforce in acute care hospitals, 94% in LTC and 97% in home care/home support.

Age distribution information was available for 82% of the health workers profiled. The average age was 41.3 years with 23% of these in the sample 50 years of age or over. Although no one occupation had an average age over 50 years, several sub-specialties did, including: paediatric dentists (59.5 years), general surgeons (52.4 years), oral pathologists (51.5 years) and oral surgeons (50.4 years). Among the older occupations were:

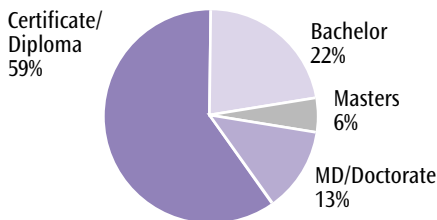
- Health managers, average age of 47.0 years, and 39% were 50 years and over
- Physicians, average age 46.8 years, and 34% were 50 years and over

- Denturists, average age 45.0 years, and 31% were 50 years and over
- Registered nurses, average age 43.9 years, 29% were 50 years and over
- Dentists average age 43.8 years, 29% were 50 years and over
- Licensed practical nurses, average age 43.2 years, and 24% were 50 years and over

By employment setting, the average age of workers in acute care was 41.3 years, with 20% aged 50 years and over; in long term care nursing homes it was 39.7 years, with 21% aged 50 years and over; and in home care/home support it was 41.6 years, with 24% aged 50 years and over.

Research also revealed that Nova Scotia's health workforce was highly educated and fairly evenly distributed across the province. Of the 31 health occupations profiled, 79% provided detail on education levels. Figure E2 indicated while the majority (59%) were trained at the certificate or diploma training; 22% had a bachelor degree, 6% had a masters degree and 13% had doctorates.

Figure E2: Level of Education of Selected Health Occupations in Nova Scotia



In comparing health occupations with post-secondary training with other industry sectors in the labour force, health workers do appear to be more highly educated. Of those in the labour force with post-secondary education, 11% had masters level or higher education, as compared to 19% for health occupations.

In terms of geographic distribution, the Capital District with 42% of the provincial population, has 46% of the health workforce. This results from the concentration of health care occupations in hospital settings, such as specialist physicians, occupational therapists, physiotherapists, respiratory therapists and others located within the Halifax Regional Municipality.

The Chapter also looks at historical *occupational growth and occupational supply* compared with the rest of Canada. Relative to growth, comparative trend data was available for 16 health occupations. It showed that between 1991 and 2000 the occupations with the fastest annual growth rates in Nova Scotia were social workers (12.8% per annum), chiropractors (11.7% per annum), psychologists and dietitians (6.6% per annum) and occupational therapists (5.0% per annum). Occupations with medium or low growth (0 to 5% per annum) included pharmacists, respiratory therapists, physiotherapists, dental hygienists, optometrists and specialist physicians. Occupations experiencing declines in growth included the medical laboratory and medical radiation technology occupations, dentists, family practitioners, registered nurses and licensed practical nurses.

In examining more recent changes in supply, the following was noteworthy.

- Licensed practical nurses and dentists experienced increases in recent years (4% and 6% respectively), reversing the average annual declines they experienced from 1991-2000.
- The supply of medical laboratory technologists and registered nurses has been flat in recent years, slowing the ten year annual declines in supply experienced from 1991-2000;
- Although the growth in physicians was flat throughout the 1990s (0.6% average annual growth), there was an increase of 9% between 1998-2001; and
- Occupations in medical radiation technology have continued to decline in recent years (-7% change), consistent with their ten-year average annual decline of -0.7% per year.

Occupational supply is also assessed by comparing Nova Scotia's per capita supply in 17 health occupations with the national average for 2000. Nova Scotia exceeded the national average in nine occupations – including registered nurses, licensed practical nurses and medical radiation technologists – three of the five occupations which experienced growth declines during the 1990s. The comparisons also showed that despite their rate of increase during the 1990s, Nova Scotia still remained well below the national average per capita, in chiropractors, optometrists and occupational therapists. It should be noted that these numbers do not take into account differences in the health status of Nova Scotians and the different mix of services delivered by various health care workers, factors that can impact differences in the number of health care workers per capita across provinces (Table E2 and Table E3).

Table E2: Occupations in which Nova Scotia exceeded National Per-Capita Average, 2000

Occupation	NS/10,000 population	Canada/10,000 population	NS as % of Canada
Social Worker	14.16	5.79	244.6%
Dietitian	3.97	2.22	178.8%
LPN	34.66	23.62	146.7%
Medical Laboratory Technologist*	7.93	5.74	138.2%
Pharmacist	9.98	7.74	128.9%
Registered Nurse (2001)	93.2	74.9	124.4%
Radiation Technology	5.34	4.7	113.6%
Physician (specialist)	10	9.3	107.5%
Physician (GP)	10.1	9.4	107.4%

Source: CIHI: Health Personnel in Canada, 1991-2000; Statistics Canada

Table E3: Occupations in which Nova Scotia was below National Per-Capita Average, 2000

Occupation	NS/10,000 population	Canada/10,000 population	NS as % of Canada
Physiotherapist	4.47	4.65	96.1%
Respiratory Therapist	1.9	2.01	94.5%
Psychologist	3.92	4.28	91.6%
Dental Hygienist	4.37	4.82	90.7%
Dentist	4.76	5.6	85.0%
Occ. Therapist	2.58	3.07	84.0%
Optometrist	0.74	1.11	66.6%
Chiropractor	0.66	1.82	36.3%

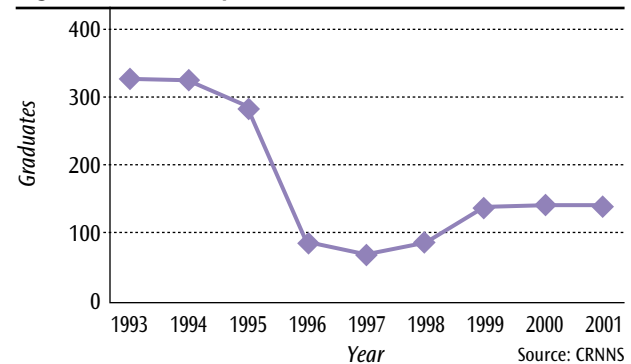
Source: CIHI: Health Personnel in Canada, 1991-2000; Statistics Canada

Information on the mobility of health care workers is available for physicians and registered nurses. From 1992 to 2000, three times more physicians moved abroad than returned from abroad. However, from 1997 onward, the net number of physicians leaving the province represents less than 1% of the physician supply for that year. According to the College of Registered Nurse of Nova Scotia, more than half (53%) of registered nurses who entered practice from 1999 to 2002 were from outside of Nova Scotia. They were mostly from Newfoundland (35%), New Brunswick (19%) and Ontario (18%). It is not possible to get a clear picture of how many registered nurses leave Nova Scotia to work elsewhere each year.

Chapter Four includes a detailed discussion of supply issues as they affect certain health occupations. Although still 38% above the national average in 2000, the medical laboratory workforce declined at an annual average rate of 2.7% per annum during the 1990s, with the sharpest drop occurring from 1997-2000. Of concern for Nova Scotia is the lack of an in province entry level education program, following the closure in 1995 of its Nova Scotia Community College diploma program. Nova Scotia has responded by increasing its enrolments to 25 at the New Brunswick Community College. As well, Nova Scotia has no local training program for medical radiation therapists. The supply of medical radiation technologists and therapists overall dropped 7% between 1998 and 2001, similar to a national trend, said to be caused by expansion in health services, high attrition rates and an underutilization of training capacity.

A much talked about supply issue both in Nova Scotia and nationally, is the significant shortage of registered nurses. Most of the decline in nursing supply occurred between 1993 and 1998, concurrent with the cutbacks associated with hospital restructuring, cutbacks in funding for nursing education programs, and the transition of nursing from a diploma to a degree. Figure E3 indicates the subsequent decline in the number of entry level nursing graduates in Nova Scotia.

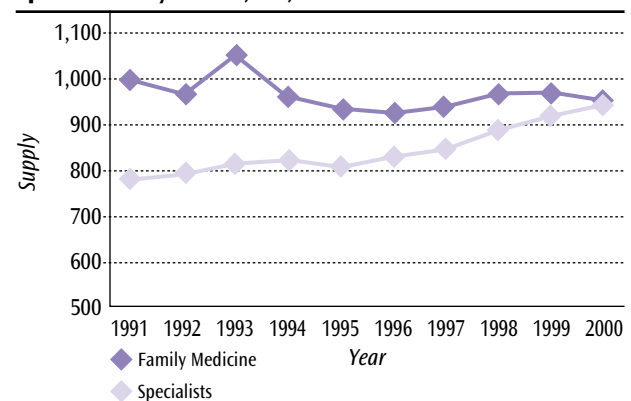
Figure E3: RN Entry Level Graduates, NS, 1993-2001



The report also identifies the aging RN workforce as a looming future problem. The average age of RNs increased from 39.3 years to 43.9 years between 1993 and 2002. This may be of particular concern for specific work settings, such as continuing care, where 44% of gerontology registered nurses were 50 years of age and older in 2002.

Ensuring an adequate supply of family practice physicians was also a concern. While the total number of physicians in Nova Scotia actually grew 0.6% annually from 1991-2000, growth was largely attributable to an increase in the number of specialist physicians. As Figure E4 shows, the average annual rate of growth for FP/GPs over this timeframe was negative, at -0.6%, while the annual growth of specialist physicians averaged 2% per year. This decline in family practice physicians, coupled with the significant increase in specialists, has resulted in the proportion of FP/GPs to Specialists decreasing from 56:44 in 1991, to 50:50 in 2001.

Figure E4: Supply of Family Medicine and Specialist Physicians, NS, 1991-2000



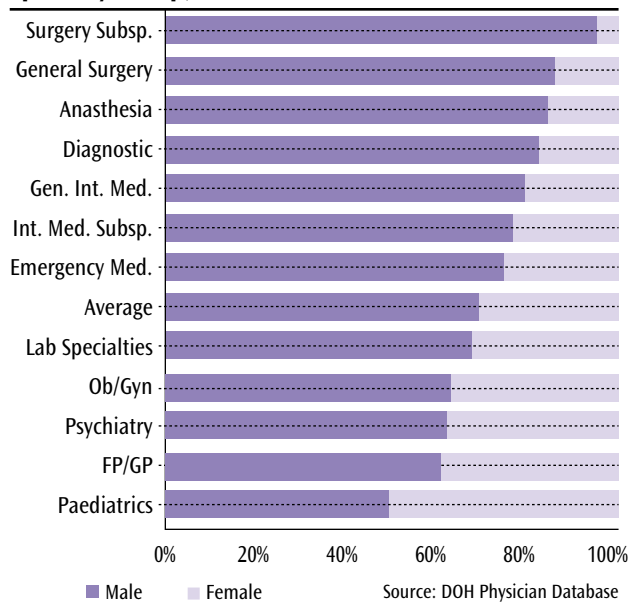
This problem may be further exacerbated by the fact that in 2000 approximately 10% of licensed FP/GPs were actually functionally practicing in specialty areas other than family medicine. Offsetting these downward trends however, is the fact that between 1994 and 2000 the number of first year and residency trainees entering family/general practice at Dalhousie increased 36% and 59%, respectively.

Similar to registered nurses, the physician workforce in Nova Scotia is aging, with more than one third (34%) of physicians aged 50 years and over in 2000. Given the long lead times of 6 to 10 years needed to train a new physician, Nova Scotia faces an immediate challenge to replace nearly 700 doctors approaching retirement age or winding down their practise in the next decade. Adding to the challenge is the fact that as physicians near retirement age, their practice pattern changes. FP/GPs see fewer unique patients, 17% fewer in 2000-01 for FP/GPs aged 60 years and older.

Another key issue with implications for HHR planning relates to the increasing proportions of females entering medicine. While females currently comprise less than one third (31%) of the physician supply, they accounted for 52% of the enrolments in Dalhousie medical school in 2000-01. Increasing numbers of female physicians becomes a planning issue, especially as it relates to female participation and productivity within the labour force.

Figure E5 illustrates that female physicians were mostly concentrated in a limited number of specialties, including Paediatrics (51%), FP/GPs (39%), Psychiatry (38%), Obstetrics/ Gynecology (37%) and Laboratory Specialties (33%). Females were noticeably scarce in surgery subspecialties, accounting for only 5%. This trend signals that the addition of more females to the physician supply has the potential to exacerbate existing sex differences in physician specialty mix.

Figure E5: Sex Distribution of NS Physicians, by Specialty Group, 2000



As well, increasing proportions of female physicians may have implications for future physician planning from a workload perspective. According to CIHI and a CMA 2001 Survey, female physicians practiced 20% less than their male counterparts. In Nova Scotia, female family physicians' service volume has been consistently running at two-thirds (67%) of their male counterparts since 1992/93.

Workload and practice patterns was not an issue specific to female physicians. A priority issue highlighted overall by physicians was not related to their numbers, but rather to workload imbalances and the changing nature and location of their practice, and its potential impact on one's quality of life.

Chapter Four ends with a discussion of the need to better measure the inflow and outflow of health workers. The supply of health care workers in Nova Scotia fluctuates each year. New graduates from health programs in Nova Scotia enter practice here while others leave the province to work. Nova Scotia also imports both experienced workers and new graduates from other regions. Health workers may temporarily leave practice because of maternity leave, illness and/or disability. They may also leave the workforce entirely due to retirement or career change. Defining the various components of the inflow and outflow of health care workers is critical, as it provides information necessary for informed decision-making about recruitment and retention strategies. At the present time, there are gaps in the information required to measure the inflow and outflow of health care workers including:

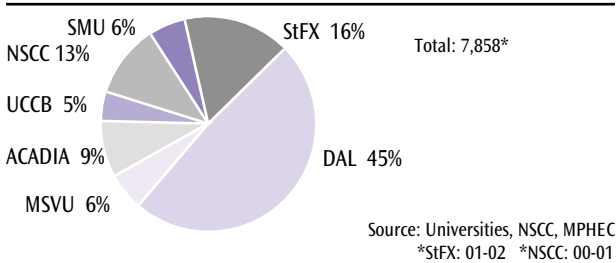
- While the age distribution of health workers was collected for about 80% of health workers profiled; nearly one half of the regulated health occupations do not routinely collect age information, essential for projecting outflows due to impending retirements;
- Registered nurses and physicians were the only occupations in Nova Scotia with accessible information on mobility;
- Although the number of graduates from health programs each year is known, the number of graduates who remain in Nova Scotia one year following graduation (retained graduates) is not known for many health occupations;
- The number and type of health workers who leave the workforce and the nature as to why they leave the workforce largely remains an unknown quantity. Outflow information due to death, injury, illness, or career change was unavailable from a central source.

Chapter Five profiles how Nova Scotia educates its health care workers, and explores the issues and challenges facing the education and training system. In 2001-02, there were about 7,800 students enrolled in some 90 health-related programs at six universities, the Nova Scotia Community College (NSCC) and various private career colleges. In addition to training its own health workers, Nova Scotia's educational institutions produce graduates for the Maritime and Atlantic region in

disciplines such as dentistry, health services administration, medicine, physiotherapy, occupational therapy, speech language pathology, and others. Only a handful of university education programs for health disciplines are not offered in Nova Scotia. But the absence of some of these – medical laboratory technology, medical radiation therapy and midwifery – has been cited as an exacerbating factor to supply concerns.

Dalhousie University dominates the education and training of health workers in Nova Scotia, accounting for 45% of enrolments in over 50 different health-related programs (Figure E6). Five other universities and the NSCC divide the remaining students fairly evenly, with St. Francis Xavier University having the next largest share at 16%. Overall, more than one in five enrolments at these post-secondary institutions are health-related program enrolments.

Figure E6: Nova Scotia Health Education/Training Enrolments by Institution, 2001-02



While there was little increase in overall enrolment in major health discipline programs between 1991 and 2001, there were a few programs, such as occupational therapy (4.3%) and social work (3.2%) which showed significant growth. In contrast, licensed practical nursing enrolment was down 3.8% over this period.

One way of measuring interest in health discipline programs is the applicant-to-enrolment ratio. Information supplied by Dalhousie covering 12 health discipline programs showed that from 1999-00 to 2000-01 the applicant-to-enrolment ratio dropped for eight of these programs. However, these ratios have rebounded in programs (e.g. pharmacy and occupational therapy) where recruitment drives were carried out.

Recruiting graduates into the Nova Scotia workforce was also an important challenge:

- In 2001, 27% of occupational therapy new graduates chose to practice in Nova Scotia, out of 48% of Nova Scotia graduates;
- In 2001, 54% of nursing graduates registered to practice in Nova Scotia, out of 82% of Nova Scotia graduate;
- In 2001, 33% of pharmacy graduates were practicing in Nova Scotia a year later, out of 64% of Nova Scotia graduates; and
- Between 1996 and 2000, there were 178 Dalhousie dentistry graduates, of which 50 (28%) were licensed to practice in Nova Scotia in 2001.

While almost two-thirds of students in health-related programs were under 25 years of age, the age profile for students in some health programs has increased significantly. In 1991-92, 42% of medical students were aged 25 years and over, but in 2001-02, the percentage was 56%. Pharmacy, occupational therapy and physiotherapy had 26%, 28% and 30% of students 25 years and older in 2001-02, compared with 11%, 15% and 19% respectively a decade earlier. Enrolment is predominately female (75%), and female enrolment is beginning to dominate occupations like medicine (52% female) and dentistry (57% female) which have traditionally been male dominated.

Funding is a key issue facing the education and training system. Some \$52.3 million was allocated by the Nova Scotia Department of Education in 2001 to undergraduate and graduate health related programs, accounting for about one quarter of the Department of Education's funding to the six Nova Scotia universities with health-related programs. Dalhousie received the bulk of that funding, nearly \$45 million, and the other five universities shared \$7.4 million. In addition, Dalhousie received more than \$20 million in targeted funding for several health discipline programs from the Department of Health. Furthermore about \$12 million of the \$64 million in total public funding to NSCC was spent on certificate and diploma programs in the NSCC's School of Health and Human Services.

Ironically, government funding for post-secondary institutions has consistently lost out in recent years to funding for health (Table E4).

Table E4: Expenditures Nova Scotia, Health vs. Post Secondary Education, 2000-04

	2000-01	2001-02	2002-03(f)	2003-04 (e)	% change 2000 - 2003
Health	\$1,747 M.	\$1,838 M	\$1,997 M	\$2,111 M	21%
Post Secondary	262 M	266 M	276 M	277 M	6%

Source: NS Dept. of Finance, budget documents

Combined with overall fiscal constraints, this has created challenges in a number of areas.

- An outdated funding model, based on a weighted average of 1994-97 full course equivalents, makes it difficult to change or expand programs;
- The demand for clinical placements, a fundamental component of many health programs, is not being met because of insufficient resources and coordination of logistical arrangements;

Funding is also having a direct impact on students. With the decline in government support, tuition fees for university undergraduates in Nova Scotia have increased significantly and are now the highest in Canada. Compounding the financial impact on students of the increased cost of a post-secondary education are two developments which increase the necessity of obtaining more post secondary education. One factor is

called “creeping credentialism”, and refers to the trend among occupations to increase educational requirements. The other is the trend at educational institutions of inflated entrance requirements beyond the published minimum, leading to a “double degree/double debt” situation for health disciplines. This can result in some students devoting up to eight years to post-secondary training to complete a four-year health program. Both phenomena have potential to affect the supply and distribution of health occupations.

In addition, a number of challenges facing education and training institutions are the result of the changing health care environment. The aging population will result in requirements for a different mix of occupational skills, with demands for expanded enrolments in programs such as geriatrics, long-term care administration, physiotherapy and home care/home support workers. Community-based, shared-care models of service delivery may have impacts in several areas, including:

- Greater demand for college-trained ‘assisting’ occupations, such as physiotherapy, dietitian and other assistants, which currently have no education and training programs offered in Nova Scotia;
- Increased pressure to integrate training opportunities across disciplines, in response to changes in scopes of practice in the work environment; and
- Increased use of multi-skilled workers, cross-trained in two or more disciplines.

Innovations in technology, such as electronic health records, tele-health and the use of complex information systems will require health care workers to both learn new technical skills and be prepared to continually upgrade them.

Innovations in technology will increase demand for occupations such as:

- Chief information officers
- Database managers
- Computer application specialists
- Genetic counselors
- Molecular genetic technicians
- MRI technologists
- Mammography technologists
- Laser and lithotripsy technicians

Source: Making Career Sense of Labour Market Information.

National regulatory changes in 2001 associated with the Agreement on Internal Trade, enable workers qualified for an occupation in one province to work in others. Educational institutions are thus increasingly required to prepare graduates to practice to national competencies. While this ensures the portability of health professions, it does not ensure that local health needs are being met.

Lastly, student demographic trends may make it difficult for Nova Scotia to locally recruit adequate numbers into its health education and training programs. That possibility arises because of two factors. First, growth in the 18-21 years of age group, from which post-secondary enrolment has traditionally been drawn, is projected to increase overall across Canada by 8.5% over the next decade, but projected growth is negative for Atlantic Canada. Second, female enrolments, which have sustained enrolment growth in health-related programs, are increasingly entering other professions. Nova Scotia currently has no overall, coordinated student recruitment strategy for its health discipline programs. Moreover, there appears to be a lack of consensus on whether the target market for recruitment should be related to stated educational entry requirements, or reflect the current applicant and enrolment pool. This influences not only Nova Scotia, but the Maritimes and the Atlantic region, relative to recruiting high school graduates, university under-graduates and/or university graduates.

Chapter 6 examines the quality of work life of health care workers in Nova Scotia. With human resource shortages becoming increasingly common across the country, a consensus is emerging that a high quality work environment is at least as important as financial incentives to attracting and retaining motivated and productive health care workers. Most people care about being valued for their work, having control over their work and having greater flexibility in the workplace. The following set of quality of worklife indicators developed by the Canadian Nurses Association in 2002 (Table E5), is considered applicable for most occupations.

Table E5: Possible quality of worklife indicators

Indicator	Definition
Span of control	Average number of direct reports for each nursing supervisor
Leadership	Corporate nursing leader at senior level with budget line responsibility
Overtime hours	Percent of nursing staff earned hours that are overtime hours
Full-time/part-time/casual ratios	Percent of total nursing staff earned hours that are full-time, part-time and casual, reported annually
Autonomy/scopes of practise	Percent of nurses reporting in a staff survey that they have adequate control over their professional practice
Professional development opportunities	Percent of nurses participating in in-service training session and/or off-site education and training programs, with the average number of hours for each type of session, reported annually
Absenteeism	Average number of days absent per nurse or absenteeism as per cent of total earned hours
Grievance	Total number of unresolved grievances

Source: CNA Quality of Worklife Indicators Workshop Report.

Current data available for the health workforce in Nova Scotia enabled reporting on three of these indicators – absenteeism, overtime and employment status.

People working in health care services are likely to have a higher rate of absenteeism than those employed in other industry sectors. According to the Statistics Canada Labour Force Survey, in 2002 health employees in Nova Scotia lost, on average, 20.7 days from work because of: illness and disability, maternity leave or for other personal reasons. This was 60% higher than the 12.9 days lost on average for people working in all industries in the province. It was also higher than the 19.2 days averaged by the Canadian health workforce as a whole (Table E6).

Table E6: Average Days Lost for Personal Reasons per Full Time Health Care Employee vs. All Industries, NS, 2002

	NS Health Industry		NS All Industries	
	Days lost	% of time lost	Days lost	% of time lost
Illness/disability	11.9	57.5%	8.6	66.7%
Maternity	7.0	33.8%	2.7	20.9%
Other Personal	1.8	8.7%	1.6	12.4%
Total	20.7	100.0%	12.9	100.0%

Source: Statistics Canada Labour Force Survey 2002.

As the table shows, there is a key difference between health and other industries related to the higher number of days health industry workers lost due to maternity leave. The higher proportion of females employed in the health industry (86%), as compared to other industries (55%), resulted in an average of four more days a year in 2002 lost due to maternity leave in the health industry (7 days), than among workers in industry as a whole (2.7 days).

When maternity leave and personal leave are subtracted from the total of 20.7 days, one is left with 11.9 days lost to illness or disability (down from 12.7 days in 2001). Based on the Labour Force Survey 2002 female health care workers in Nova Scotia have a higher rate of absenteeism due to illness or disability than their male counterparts. The average for females of 13.0 days lost (excluding maternity leave) was more than double that of males. The 11.9 days lost by both sexes equals about one day a month per employee. Based on a health industry workforce of 52,900 people, if days lost due to illness and disability in health care were reduced to the rate of 8.6 days incurred for all Nova Scotia workers, it would be like having 671 more full time equivalent health workers on the job in this Province.

The Statistics Canada Labour Force Survey did not break down time lost to illness versus time lost to disability. However, information obtained from the Nova Scotia Workers'

Compensation Board (WCB) indicated that in 2000, time lost by health workers due to workplace injury totaled about 2.2 days. Nurses accounted for the largest proportion of claims and payments made by WCB in 2000, with 76% of claims and 79% of payments, usually for sprain or strain injuries. According to WCB data, 42% of total claim payments were for nursing home employees, and 34% for hospital workers.

In 2000-01, based on data reported by acute care facilities, there was \$15.4 million paid out in sick pay, equaling 3.7% of earned compensation. On an occupational level, six acute care occupations exceeded the average, namely licensed practical nurses (4.4%), operating room assistants (4.3%), nursing assistant/orderlies (4.3%), physiotherapy assistants (4.2%), registered nurses (4.1%) and psychology assistants (4.1%). For the health occupations in acute care, actual time lost reported due to illness worked out to more than 400 full time equivalent positions. In continuing care, sick time appeared to follow a similar pattern to acute care. Based on the information available from continuing care institutions, sick pay accounted for about 3.5% of the total compensation.

Employment insurance (EI) information provided additional context to the employment of health care workers in Nova Scotia. The average EI claim was \$3,191 among selected health occupations. For selected health occupations maternity benefits accounted for 43% of EI claims, regular EI accounted for 41% of claims, and sickness accounted for 16% of claims. Licensed practical nurses and medical laboratory technologists had higher than average proportions of claims as regular EI benefits (66% and 56% respectively, versus 41% on average overall). Registered nurses had higher than average proportions of claims for EI sickness benefits (20% versus 16% on average overall).

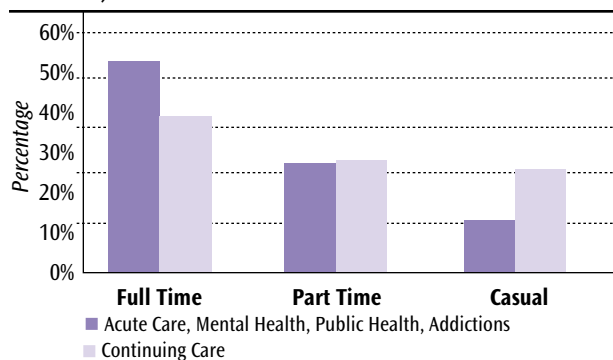
Several occupational representatives suggested that shortages of personnel and relief staff, coupled with increasing demands for service, have resulted in high levels of *working overtime*. However, at the health care industry level, Statistics Canada suggests health care workers are less likely to work overtime than workers in other industries. Almost one in five health care workers (19.6%) in Nova Scotia worked paid or unpaid overtime in 2002. This was slightly higher than the proportion of health care workers in Canada who worked overtime (18.6%), but lower than the 21.3% of non-health workers in Nova Scotia who worked overtime in 2002. Health care workers also worked less overtime in 2002, on average, compared to the workforce as a whole. Of those who worked overtime, health care workers in Nova Scotia averaged an extra 7 hours of paid or unpaid overtime, while non-health workers who worked overtime put in an average of 8.8 hours of paid and overtime per week extra.

In terms of overtime by work setting, information gathered from District Health Authority (DHA) employers and the IWK in acute care indicated that overtime represented, on average, 2.4% of total compensation paid to health care workers in 2000-01. The overtime rate in continuing care was lower, averaging just over one per cent of payroll. For the 26 selected occupational groups in acute care, only three occupations, operating room assistants (5.7%), respiratory therapists (4.1%) and registered nurses (3.4%) exceeded the overall average of 2.4%.

People working in health care are much more likely to be employed on a *part time or casual* basis than other Canadian workers. A special Workplace and Employee Survey published by Statistics Canada in 1999 found that in 1998 only 52% of workers in health care had full time positions, compared with 74% of Canadians working outside the health field.

The picture was the same for Nova Scotia health workers. In acute care hospitals, mental health, public health and addictions services in 2000, approximately 55% of workers were employed full time, 30% had part time work and 15% were employed on a casual basis. Full time employment was harder to find in continuing care, where it accounted for only 42% of employment, while part time accounted for 30% and casual for 28% (Figure E7).

Figure E7: Employment Status, Nova Scotia Health Workers, 2000

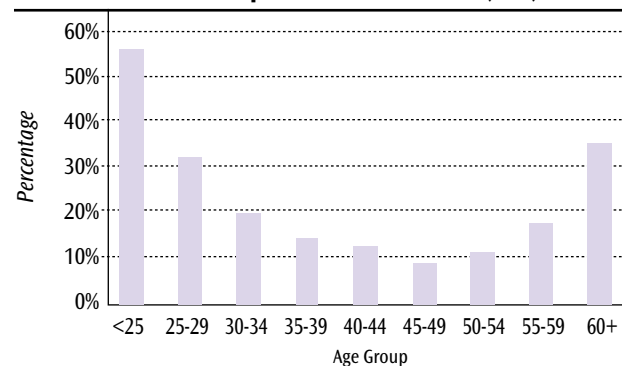


Occupations with 70% or more workers in *full time employment* included paramedics (98%), health executives (82%), respiratory therapists (76%), physiotherapists (74%), medical laboratory technologists (73%), operating room assistants (72%) and occupational therapists (70%). *Casual employment* was highest among occupations employed in continuing care settings, such as community residential workers (30%), personal care workers (30%), licensed practical nurses (25%), and home support workers (23%).

Analysis of data from acute care hospitals revealed that casual employment was highest among younger workers, reflecting it may take several years to work into full time positions. Over one-half (56%) of workers under 25 years and one-third (33%) of workers between 25 and 29 years worked in casual positions in 2000.

Figure E8 shows the resulting 'U' shape distribution of casual employment among younger and older age groups in acute care. As people move into full time jobs, a much lower percentage worked on a casual basis. The proportion who worked casual reached a low of 9% for those between 45-49 years of age. However, the percentage of workers working casual started to increase again among workers 50 years of age and older. Of those 60 years of age and older working in acute care, 35% were employed on a casual basis. A possible explanation for this may be that some workers opt for pre-retirement by working casual, or they return to the workforce following retirement to work on a casual basis.

Figure E8: Casual/Relief Status by Age Group, Selected Health Occupations in Acute Care, NS, 2001



Chapter Six concludes with a discussion of the key employment trends and issues identified during consultation and literature review. These trends and issues have potential impact on future planning, recruitment and retention of the health workforce.

Changing lifestyle expectations are an increasingly important factor for health care workers who favor a more balanced lifestyle, including more time to spend with their families. Physicians in particular want to decrease the number of hours they work, understandable in view of the fact that a survey in 2001 found that on average Nova Scotia GP/FPs worked a 78-hour week (compared with 69 hours for Canadian GP/FPs). On-call service was a particular concern for Nova Scotia GP/FPs. Health service managers also say the impact of personal lifestyle sacrifices, high levels of stress and long working hours is a disincentive to attracting future leaders into management positions. As well, continuing care informants indicated that changing lifestyle expectations of younger job seekers and competition from call centers has made recruitment more challenging.

High workload was a factor in high staff turnover, poor employee morale, burnout, lowered levels of productivity and increased potential for injury. The issue of high workload was raised by most occupations interviewed for this study. Some of the challenges identified included:

- The increasing acuity levels and number of elderly with more complex and time-consuming problems;
- Restructuring of the health care system, resulting in shorter hospital stays which in turn, increases the demands on workers in community, home and long term care settings; and
- The lack of a consistent approach to measuring workload.

Public/professional identity was a concern for various occupations. Personal care workers, home care/home support workers and community residential workers employed in continuing care were seen as representing less professional work than those in other health settings. Social workers also expressed concern about the public's perception of what they do, pointing out that downsizing has resulted in a redefinition of their roles, with social work functions sometimes being carried out by others. Therapeutic recreation professionals noted the role and benefit of their practice was not well understood by many health occupations and members of the public. In addition, some practitioners of alternative and complementary medicine, such as chiropractors, perceived there is still a bias around them becoming mainstream in the provincial medical community and in health care planning.

Compensation issues arose in a number of contexts. For health workers as a whole, competitiveness of salaries was an issue. Statistics Canada reported in 2002, that average weekly wages for 'professional occupations in health, nurse supervisors and registered nurses' in Nova Scotia were 2.6% below the national average. For 'technical, and assisting and related occupations', wages in Nova Scotia were 8% below the Canadian average. On the other hand, wages for both groups increased more quickly than the national average between 1998 and 2002. For physicians, the issue was the form of payment. Fee-for-service as the sole form of payment is in decline in Nova Scotia. Only 38% of Nova Scotia doctors derived their income solely from fee-for-service payments in 2000-01, as compared to 59% of physicians across the country. In continuing care settings, front line workers identified fair wages and benefits as a key issue, along with high rates of part time and casual employment.

Some of the discussion and research on the issue of *scopes of practice* has involved the practice of nurse practitioners and midwives and how they may be able to provide primary health care that has traditionally been the preserve of physicians. Research has found that occupations such as licensed practical nurses, dental hygienists, pharmacy technicians, nurse anesthetists and chiropractors can safely expand their roles to provide services that are typically provided by those with more training. As well, some work performed by rehabilitation professionals can be safely delegated to assistants or technicians. In Nova Scotia, there was a range of scopes of practice issues identified, associated with occupations such as midwives, licensed practical nurses, pharmacists, pharmacy technicians, psychologists and dental hygienists, among others. In the continuing care sector, where most services are delivered by unregulated health occupations, a recent study found that workers operate under a myriad of policies and practices, with several occupations expressing concern they were not allowed to perform work for which they were qualified.

Professional development and leadership development are both key to creating and maintaining a strong and productive health care workforce. With regard to professional development, health sector employers were becoming less willing and able to give time off work for professional development because staff shortages meant there was no one available to cover shifts. Several occupations also reported limited opportunities for career advancement within, or 'career laddering' over time. As for leadership development, it was considered essential to increasing work effectiveness, reducing occupational stress and influencing staff retention. The study notes a 2000 report which found that 88% of health service executives surveyed mentioned "loss of leadership control" as an issue. In response to findings such as these, the Department of Health, nursing organizations, DHAs, the Nova Scotia Association of Health Organizations (NSAHO) and other organizations are paying more attention to leadership development.

Chapter Seven concludes with recommendations for making health workforce planning more effective. A challenge in planning for the future health workforce is that to date there is no planning framework that integrates HHR with the broader forces shaping change in the health care system. HHR planning does not occur in a vacuum (Figure E9). The nature of health care service delivery structures is changing, as are the skills and competencies needed to deliver health care. Environmental factors such as technological advances, demographic changes, regulatory structures, changing public expectations, and economic forces, must also be considered as part of the planning picture.

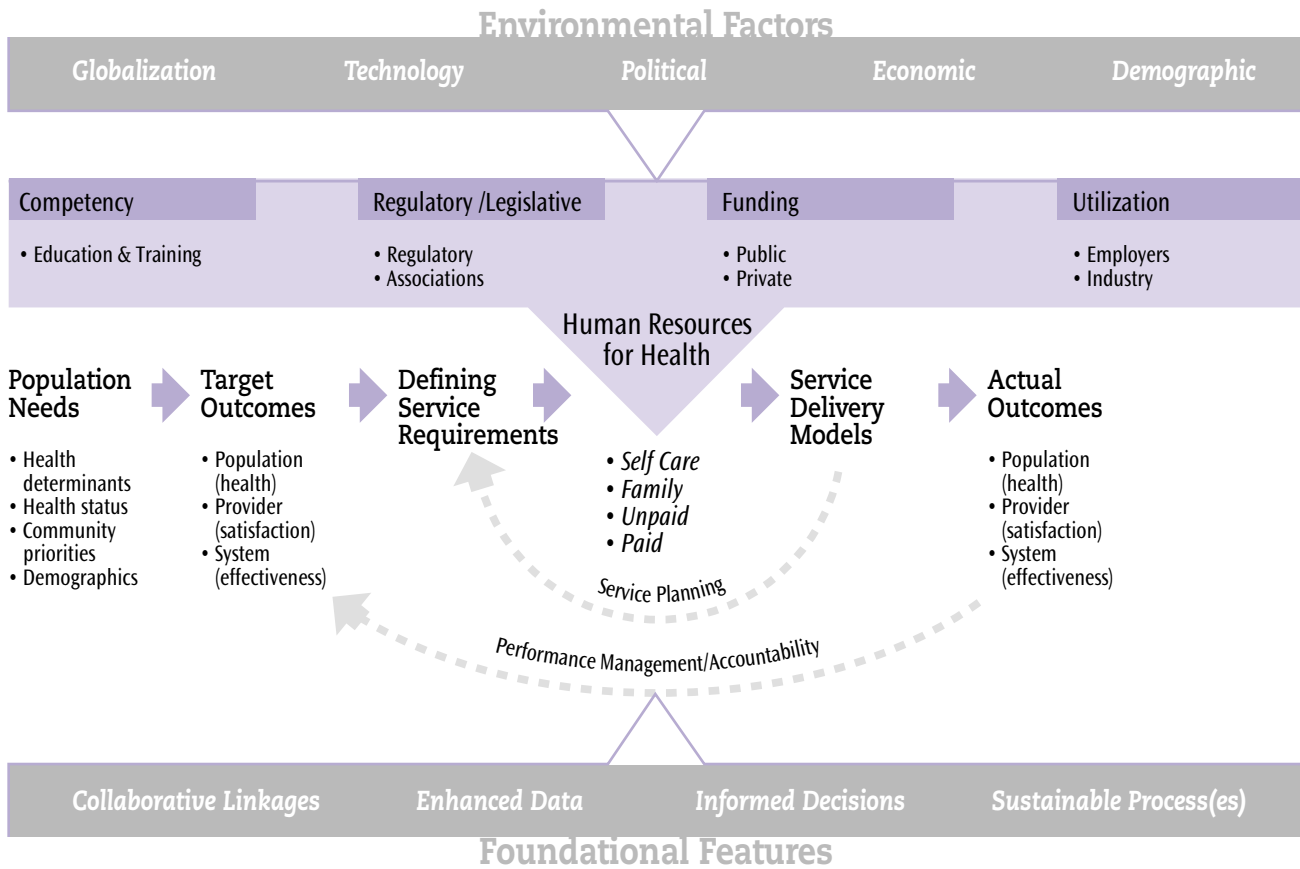
The long-term HHR planning framework conceptualized from this study (Figure E9) represents an adaptation of various other HHR planning models that have been recently proposed, as well as the experiential knowledge and learning that resulted from undertaking the process of this study. It suggests HHR planning should be integrated with broader service delivery and financial planning processes. It assumes planning efforts should be built around health care service needs of the Nova Scotia population and the competencies and skills required for delivering them. And service planning for meeting these health needs must utilize the full HR continuum (self care, family, unpaid, paid) of resources.

Two noteworthy elements identified as critical for enhanced HHR planning were:

- articulation by government of service delivery requirements in various settings; and
- better linkages among all stakeholders - education institutions, industry, government, regulatory bodies and associations - involved in planning the health workforce

Chapter Seven concludes with a series of recommendations for improving the availability, accessibility and quality of data on Nova Scotia's health workforce because, it argues, good information is essential to successful HHR planning. It proposes the DOH take a leadership role in key areas related to:

Figure E9: Long Term Health Human Resource Planning Conceptual Framework



- developing an ongoing data collection process and a centralized data repository for HHR, with standardized data elements, definitions and structure;
- maintaining confidentiality agreements and a memorandum of understanding with key data stakeholders ensuring full compliance with privacy guidelines;
- establishing guidelines for the internal use and external publication of HHR information;
- standardizing job criteria to enable consistency and comparability of health occupations across geographic and practice settings;
- standardizing education and training data elements, definitions, timing and frequency of data collection;
- conducting ongoing, periodic environmental scanning and labour market analyses and maintaining a qualitative issues data bank to input and inform HHR planning and policy processes; and
- interfacing between educational, regulatory, government and employer/industry stakeholders to collaborate on HHR strategies and best practices to effect better planning, policy, accountability and performance measurement frameworks.

This report has provided a baseline assessment of Nova Scotia’s HHR, detailing workforce demographics, education and employment characteristics, as well as emerging trends and issues relevant to HHR planning. This provides a framework to develop strategies for balancing supply to meet Nova Scotia’s health needs; aligning education and training to service delivery requirements, and valuing our people within the workplace.

Proposed activities for completing this project include:

- Examining occupational requirements for HHR planning;
- Conducting a gap analysis and identifying options;
- Providing recommendations for future HHR planning;
- Disseminating study findings and results; and
- Providing assistance to the DOH with integration of data and set up of processes to enhance HHR planning.

1.0 MANDATE AND METHODOLOGY

1.1 THE MANDATE

Our health care system is a complex blend of many things but it is first and foremost about people, patients, clients and caregivers. To sustain a health care system that serves the needs of Nova Scotians, we must ensure we have the necessary caregivers - now and for the future.

The Romanow Report "The Future of Health Care in Canada," identified Health Human Resources (HHR) planning as one of the key priorities to protect the future of health care in Canada. Planning is needed to meet our health requirements, and to avoid shortages of health care providers. As Romanow pointed out, a plan is even more necessary as we try to put together "the right mix of skills from an integrated team of health care providers (to) deliver ...comprehensive approaches to health care."

This report identifies several elements to HHR planning, including training and strategies for recruitment and retention. However, the first step to a comprehensive plan is to conduct thorough research leading to a better understanding of our health workforce in Nova Scotia.

The *Study of Health Human Resources in Nova Scotia*, a Human Resource Development Canada (HRDC) funded project, was initiated in 2001 as a joint undertaking between the Nova Scotia Department of Health (DOH) and the Health Care Human Resource Sector Council (HCHRSC). This report develops a profile of the Nova Scotia health care workforce, identifies specific issues, and recommends priority areas for future planning.

This report provides a baseline assessment of Nova Scotia's HHR, detailing workforce demographics, education and employment characteristics, as well as emerging trends and issues relevant to HHR planning. This provides a framework to develop strategies for balancing supply to meet Nova Scotia's health needs; aligning education and training to service delivery requirements; and valuing our people within the workplace.

Project deliverables in this baseline report include:

- Environmental scan of issues and emerging trends (including labour market, regulatory/legislative, demographic, etc);
- Inventory of HHR initiatives (2000-2002) in other provinces;
- 31 occupational snapshots, detailed profiles and HR issues;
- Inventory of education and training programs and statistics;
- Highlights of occupational, education and training and employment issues relevant to HHR planning and policy;
- Baseline database of HHR in Nova Scotia (based on existing data availability and accessibility); and
- Synopsis of data issues relevant to HHR planning in Nova Scotia.

Concurrently, throughout the fiscal year 2002-2003, the HCHRSC project team resources were tasked with the responsibility and role of leading the development of a joint Atlantic proposal to HRDC to examine education and training planning for health disciplines within Atlantic Canada. This draft proposal was presented to the Atlantic Deputy Ministers of Health and Education in November, 2002.

Proposed activities for completing this study include:

- Examining occupational requirements for HHR planning;
- Conducting a gap analysis and developing options;
- Providing recommendations for future HHR planning;
- Disseminating study findings and results; and
- Providing assistance to the DOH with data integration and collection process setup to enhance HHR planning.

1.2 THE METHODOLOGY

1.2.1 Conceptual Approach

A number of approaches are used in HHR planning. As there is no common or over-riding framework for planning, for the most part, efforts have been limited and disparate. HHR studies have focused on specific sub-sectors (e.g. home care, acute care, primary care), occupational groups (e.g. nurses and physicians being the most common), diseases (e.g. cancer, heart, alzheimers, and stroke) or specific services (e.g. oral health services, mental health services).

While such initiatives provide valuable information for specific practice settings or health professions, they often fail to consider the broader context of the health care system and the inter-relationships of various health care teams who deliver health care services. Existing inefficiencies may not be considered, nor the impact of advances in technology and anticipated changes in service delivery.

A conceptual change in the approach to HHR planning seems to be in the works. A report conducted for the Commission on the Future of Health Care in Canada, by the Canadian Policy Research Networks, identified four key shifts in thinking that need to occur for HHR planning to be more effective¹:

- HHR planning must become integrated with system design issues, rather than conducted as a separate policy exercise;
- HHR planning must be done from the perspective of population health needs;
- HHR planning must be done on the basis of a team of providers, rather than on the basis of individual health providers; and
- HHR planning requires national co-operation.

1. Health Human Resource Planning in Canada: Physician and Nursing Workforce Issues. Canadian Policy Research Networks, Inc. October 2002. Summary Report prepared for the Commission on the Future of Health Care in Canada.

Figure 1.1: Long Term Health Human Resource Planning Conceptual Framework

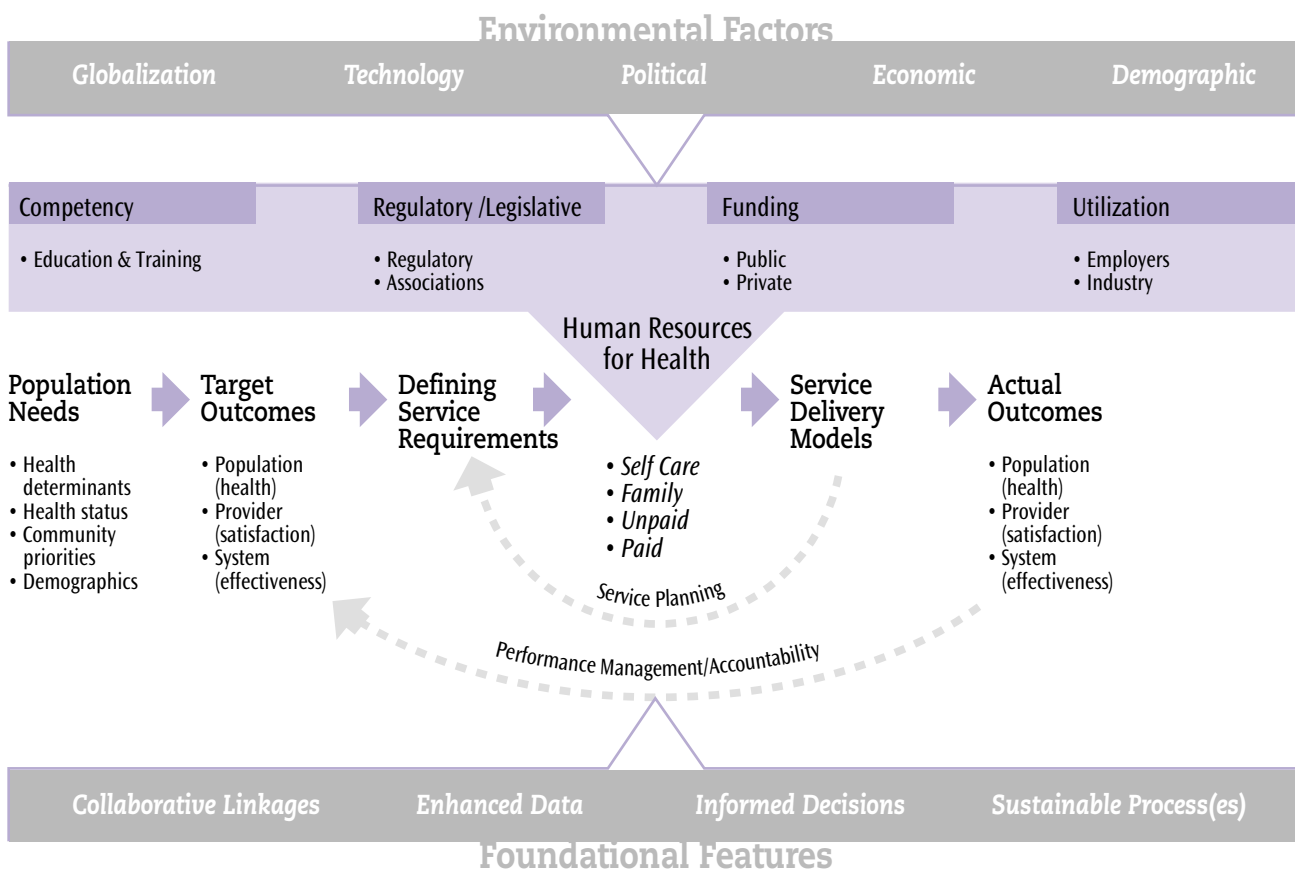


Figure 1.1 outlines the HHR planning conceptual framework derived for this study. This framework represents an adaptation of various other HHR planning models that have been recently proposed (such as Linda O’Brien-Pallas and others). HHR planning does not operate in a vacuum, and is influenced, as all industries are, by external environmental factors.

This framework assumes service planning efforts are built around the health care needs of the Nova Scotia population, and the skills and competencies required in delivering them. Another important facet for future HHR planning is the consideration and input of the full Human Resource continuum, (both paid and unpaid) as a key resource component.

Figure 1.1 also includes some core foundational features for HHR planning. Contributing toward this foundation became the fundamental goal of this project. The research conducted as a result of this study will provide a foundation and environment conducive to:

- Enhanced data for planning, policy and resource allocation;
- Sustainable processes to integrate HHR Planning into financial, service delivery, and education and training planning;
- Informed policy to enable evidence-based decision-making; and
- Collaborative linkages to facilitate planning, education and training and management of human resources for health.

1.2.2 Project Methodology

The project launch in April 2001 was followed by preliminary consultations with key stakeholders - provincial government departments, education and training institutions, research organizations and industry representatives. This led to the finalization in September 2001 of project objectives, scope and activities.

The project methodology was adapted from a HHR framework introduced by Thomas Hall in 1988 and subsequently adopted by the World Health Organization (WHO) in its planning and policy toolkit. The framework identifies three key elements for optimizing development of human resources for health:

- Workforce planning for short and long term needs
- Production of a health care workforce through education and training
- Management of human resources to recruit and retain workers

The design of the baseline assessment began with:

- Consultation with the Canadian Institute for Health Information (CIHI) on data access and information-sharing opportunities;
- Consultation with DOH on availability of internal HHR data for this study;

- Secondary research, as well as a web literature review of HHR;
- Identification of recent, ongoing and planned HHR planning initiatives;
- Identification of quantitative and qualitative data availability and accessibility for supply, education and training, and management and employment; and
- Environmental scan of HHR issues and emerging trends.

Upon reviewing national, regional, provincial and locally available data, indicators were defined for availability, accessibility, appropriateness, and relevance. An early discovery was the lack of a comprehensive or integrated database to guide provincial HHR planning and policy functions. While ample data existed for physician and nursing professionals, data gaps and definition inconsistencies existed in areas related to demographics, education and training and practice information.

Aside from nursing and physician health occupations, no formalized data collection process or agreements were in place with regulatory bodies or professional associations. In 1999, the DOH collected preliminary supply data on other regulated health professions, however, existing information was disparate and sparse, relative to content and format.

Given the shortage of reliable, accurate and timely data on health care workers in Nova Scotia, most of the data came from primary in-field data collection. Because most organizations did not have the information needed to profile the health workforce, approximately 20% of the data collected came from existing secondary data sources. The rest (80%) came from primary research in the field.

The DOH or the Department of Education (DOE) do not currently maintain a data repository of education and training statistics specifically for health discipline programs or people. In the absence of receiving projections, key decisions regarding the education and training of health disciplines by default, rests with the individual educational institutions. As well, there is no comprehensive central repository of employment related data (HHR financial, payroll and employee demographics) in Nova Scotia.

The project's scope, activities and schedule changed on an iterative basis to reflect these realities. The focus for the baseline became one of trying to piece together a credible picture, from the data and information received from multiple, disparate sources.

Primary research occurred with one-on-one visits and the collection of qualitative and quantitative data from associations and regulatory bodies, educational and training institutions, and various industry representatives and employers.

Secondary research included an examination of data from Statistics Canada, HRDC, the Labour Force Survey, Employment Insurance (EI) and Workers' Compensation Board (WCB) statistics. Data also came from government-related sources such as Nova Scotia Association of Health Organizations (NSAHO), Department of Education (DOE), Department of Health (DOH), Department of Community Services (DCS), Maritime Provinces Higher Education Commission (MPHEC) and Canadian Post-M.D. Education Registry (CAPER).

A summary of key activities included:

- *Stakeholder contacts* in the field were identified. Face-to-face meetings and presentations occurred to discuss the concept and status of HHR Planning for Nova Scotia, and what was needed to enhance this process;
- *Primary data indicators*, definitions and templates were established for supply, education and training, and HHR management/employment;
- *Letters were sent requesting data* 1) from regulatory and professional and other provider representative associations for supply information 2) from select Nova Scotia universities and community college for educational and training information 3) from 275+ organizations and employers for management and employment information;
- *Quantitative and qualitative information* was collected from professional associations and regulatory bodies, education and training institutions, and DHAs, relevant provincial government departments, nursing homes, home support agencies, residential care facilities (RCFs), community based options (CBOs), and key associations and informants for other areas (such as NSAHO, Continuing Care Association of Nova Scotia, Home Support Nova Scotia Association, WCB, EI and Statistics Canada);
- *Templates were standardized*, but incoming data varied considerably, necessitating extensive data cleaning and preparation prior to analysis; and
- *Validation Processes* occurred, whereby results, findings and interpretations from the data analysis were formerly validated by original and overlapping data sources.

1.2.3 Data Methodology

Data was gathered and processed in three categories - supply, education and training and employment, with each area presenting its own challenges.

1.2.3.1 Supply Data

The supply data collection process began with a letter of introducing the project. Each regulatory body and association was consulted to access both quantitative and qualitative data to enable the construction of 31 occupational profiles.

Relative to quantitative data, a template of approximately 55 supply indicators was introduced and discussed at the initial face-to-face meetings. A formal letter of request followed to gather this and other relevant data that would be utilized for this study. Individual demographic information was provided by each of the regulatory bodies and/or health care provider associations through a variety of sources, including their annual registration process, local and national requests, surveys and/or membership mailing lists.

The 'quality' of supply data was collected for the 31 occupational groups. The depth and breadth of the occupational profiles was determined in large measure by the quantity and quality of the data sources. Individual demographic information was provided by each of the regulatory body and/or health care provider associations through a variety of sources, including their annual registration process, local and national requests, surveys and/or membership mailing lists. In addition, registration forms were examined to determine what information these organizations collected.

CIHI representatives managing HHR data were consulted to discuss data availability and accessibility at the national, regional and provincial levels. As well, the existing data collection process was discussed and issues involving data completeness and quality of data. CIHI information reported in *Health Personnel in Canada, 1991 to 2000*, was used to analyze supply and graduate trend data for Nova Scotia, as compared to Canada overall.

The quantitative data required extensive, timely preparation and cleaning before it could be analyzed. In addition, based upon the 'completeness' of data received, it became necessary to collect supplementary information beyond that received from the initial quantitative survey.

From a qualitative perspective, key informant interviews were conducted. A similar series of questions were administered to enhance consistency in identifying and highlighting key HR issues for each health occupation. In conjunction with this, a literature review was conducted on HHR related issues for each occupation as part of the environmental scan process.

The final, but perhaps most crucial stage of the supply analysis was the validation process. The occupational profiles, one-page summaries and occupational issues were sent to those who provided the information (regulatory bodies, associations, etc.) requesting content validation. This procedure proved critical to substantiating the credibility and reliability of the findings drawn from multiple sources of data over varying time frames.

1.2.3.2 Education and Training Data

The data collection process for education and training was initiated by a letter of introduction, co-signed by the Deputy Ministers of Health and Education and forwarded to the major education institutions responsible for education and training programs for health disciplines.

The collection of qualitative and quantitative data for health education and training programs occurred through consultation with various registrars, vice presidents, institutional analysts, department heads and faculty at universities and the Nova Scotia Community College (NSCC). In addition, interviews were conducted with educational representatives from the seven institutions responsible for the delivery of health programs. Data was also retrieved from institutional websites, academic calendars, education and training institutions and associated organizations.

A series of education and training data indicators was developed for four key areas: program, student, faculty and clinical education, for a total of 46 indicators. Maritime Provinces Higher Education Commission data was used to provide trend information for the academic years prior to 1999-00 and to supplement the enrolment and graduation information provided by the seven educational institutions.

Education and training data covering 90 health-related programs was collected. Enrolment demographic information was analyzed by institution, by program, and by degree level for each institution. This education and training inventory can be used to support the creation of a broader inventory of health related programs for health occupations working within the Atlantic Provinces.

From a qualitative perspective, each of the key informant interviews on education and training issues were documented and reviewed for common themes. These themes were further researched and any quantitative data to support these issues were supplemented accordingly.

The validation process for education and training involved a letter to educational representatives to obtain feedback on the education and training tables and the education-related contents in the occupational profiles, summaries and issues. As well, education and training issues identified during consultations were synthesized into a summary document and included in the validation packages where appropriate.

Quantitative data related to program statistics and student demographics were reconciled based on feedback received from the education institutions, primarily on the basis of registrar

information. Information provided by university department heads proved especially valuable for triangulating data, and as a data source for information not collected on a routine basis by the registrar, such as clinical education and faculty statistics.

1.2.3.3 Management and Employment data

There is no central repository of data on employment characteristics of health care workers. Numerous sources, from regulatory bodies and professional associations to individual employers, were therefore consulted in order to create a composite picture of employment information. Since the relevant organizations that were consulted did not maintain aggregate data by occupation, it was necessary to develop a list of 61 individual management and employment indicators which could then be rolled up by employee classifications to their respective occupational categories. Standard electronic and manual templates were designed and distributed for data collection to acute care (nine DHAs and the IWK) and continuing care (275+) facilities and organizations.

Data collection for acute care facilities involved working primarily with human resource representatives among the DHAs and IWK. For mental health, public health and addictions services, the DOH and related in-field representatives supplied information. As well, program and service representatives at the DOH assisted with the process.

Data collection for the continuing care sector was more complex, as it included four different facility types:

- Long Term Care facilities (LTC) nursing homes;
- Home Care/Home Support (HC/HS);
- Residential Care Facilities (RCFs); and
- Community Based Options (CBOs).

Each of these four areas in turn, was comprised of additional sub-levels. For example, CBOs included group homes, small option homes, developmental residences, workshops, adult residential centres (ARCs), regional rehabilitation centres (RRCs) and supervised apartments. Another layer of complexity for continuing care data collection was that health care workers in CBOs and RCFs were employed by two separate government departments (DOH and DCS).

Employment data for acute care was examined at an aggregate occupation and DHA level, focused mainly on the components of demographic and compensation-related information (e.g. sick time, overtime, etc.). As part of the validation process, demographic and employment information and its related findings were distributed to each DHA and the IWK. As anomalies were discovered, the database was updated.

The continuing care data analyzed proved somewhat limited for thorough analysis. Data from facilities and other sources, such as the DOH and DCS, were utilized for the aggregate demographics and compensation analysis for the continuing care workforce and contributed to the building of several of the occupational profiles.

It is noteworthy that some of the preliminary results and findings from continuing care facilities were used to cross reference data that was contained in the occupational profiles. In addition, expert opinion from selected key informants was used to substantiate gaps in data.

Health workforce employment related information was also obtained from other sources, including:

- The *Management Information Service (MIS)* at the Department of Health was accessed to obtain work and benefit (e.g. earned) dollars, hours and FTEs for acute care hospitals, public health, addictions and mental health;
- The *Nova Scotia Association of Health Organizations (NSAHO)* was contacted to source information on return to work programs, retirements, and pensions ;
- HRDC Labour Force Survey statistics were accessed as part of the environmental scan in examining employment information pertaining to the health industry ;
- Data requested from the WCB included the number, cost, type and duration of injury claims by occupation, for the period 1991 to 2000; and
- EI statistics obtained for the period 1995 to 2000, were used to examine the utilization of employment insurance benefits, by type of benefit and occupation.

1.2.4 Data Challenges

There is no nationally recognized standardized set of data elements for HHR planning for health professionals. National organizations like CIHI are working to address data issues in HHR planning, but they are dependent on the accuracy of input data from the provinces.

Confidentiality is a key issue. Of the 31 occupations profiled, about 80% reported on an individual basis, and 20% reported aggregate information only. As part of an ongoing data collection process, the DOH is developing confidentiality agreements and a memorandum of understanding with key data stakeholders, to ensure full compliance with provincial privacy guidelines.

Quantitative data received from regulatory bodies and professional associations, educational institutions and employers varied in content and format, relative to their data elements, definitions, time frames, and format. These organizations have varying data requirements and resources,

based upon their mandates and interests, which, in turn, reflect the disparity in their data collection. Extensive coding of the data into a common format suitable for analysis was required.

In addition to these challenges, there were specific problems with using existing databases to derive information useful to HHR planning. These included:

- The Management Information System (MIS) at the DOH records hours and dollars only by broad occupational group and was unable to provide demographics or more detailed employment-related information such as age, gender, sick time, overtime, and status. As well, the MIS data for DHA 9 was only available at the aggregate level. However, the DOH has plans to expand its MIS capacity to collect greater breadth and depth of information. For example, it is anticipated that data on employment status will be added to the MIS at the DOH in the coming year;
- WCB data on claims by injured workers in the health care field does not always include occupation as a completed field. This made it difficult to analyze claims data at the occupation level;
- HRDC feedback on using the *Labour Force Survey Statistics* indicated information was reliable for use at an aggregate National Occupational Code (NOC) group level, but not always at a specific health occupation level. Traditionally, the NOC codes reported are based upon the education and training requirements for an occupational group, which means the same NOC code may contain related and non-related health occupations grouped together. As well, a substantial part of the demand and supply related information included in the NOC codes was dated, as much of it was derived from utilization of the 1996 census data. On a positive note, as of 2002, the NOC codes have been refined and redefined. Future reporting should enable better analysis for each health profession. As well, the 2000 Census information is anticipated to be incorporated into 2003 HHR projection information; and
- EI records were provided by the aggregate NOC at the county level, making it impossible to compare EI data with other data compiled by DHA area.

1.2.4.1 Supply Related Data Issues

The most comprehensive information currently exists for regulated health occupations. While the regulated occupations require mandatory registration, non-regulated occupations were only able to provide limited data, which typically represented a sub-sample of their total workforce. This made it challenging to collect comprehensive supply data for non-regulated occupations. As well there was little information available on unpaid caregivers.

Supply data reported by organizations such as CIHI was limited mostly to regulated health professions due to the absence of standardized, comparable data. CIHI utilizes membership data for some of the non-regulated organizations as a supply proxy. However, membership in non-regulated organizations is voluntary, and varies year-to-year by jurisdiction, so the number of workers in unregulated occupations was likely under-represented.

While a standardized supply data indicator template was distributed, the quality of the supply data varied considerably. The format of the original data received varied from electronic databases and spreadsheets (e.g. Excel, Quattro Pro, Access, Macintosh), to emails, surveys, annual reports and mailing lists. This made it necessary to clean supply data extensively prior to analysis.

For some organizations, the data request proved onerous in terms of resource effort required to compile data for the supply indicators. In several cases, local associations sourced, and even paid for, supply data from their national counterparts.

Some key data elements deemed essential for planning were either not available and/or not accessible. For example, of the age-related data initially requested from the 19 regulated health professions in Nova Scotia, about half of them were able to provide it. Additionally, several who did not provide it were found to actually collect this information (based upon local registration forms). Using a variety of different data sources, however, it was possible to report age information for 82% of the health workforce profiled for this study.

There was also limited information available on the mobility of health care workers across provincial and international boundaries. With the exception of registered nurses and physicians, there was no comprehensive data available, by occupation, indicating how many health care workers move in and out of Nova Scotia each year.

The timing of a data collection request can influence the quality and timeliness of the information received, due to associations and/or regulatory bodies different registration periods. For example, the Nova Scotia Association of Social Workers (NSASW) requests annual registration information by the end of February, while the College of Registered Nurses and College of Licensed Practical Nurses require annual registration by October 31. Other associations had calendar year or other fiscal year registration periods.

Analysis of trend information for some occupations was complicated by the timing of the introduction of legislation governing the licensing of health professionals. For increases in supply over time may, in fact, simply represent the requirement for practitioners to become licensed, rather than actual increases in supply. For instance, the *Physiotherapists Act* was passed in

1998. The supply of physiotherapists in Nova Scotia went from 333 workers in the early 1990s to 422 workers in 1998. It was not possible to determine if this growth was the result of larger numbers of practicing physiotherapists or the introduction of licensure requirements.

To remedy gaps in supply data provided by the Associations and Regulatory Bodies, and to obtain more complete information for unregulated occupations, data was obtained and utilized from other local and national sources. As an example, demographic age data for occupational groups working primarily in a hospital setting, such as medical radiation and medical laboratory technologists, was derived from demographic information reported by each DHA as well as data reported by local and national associations. This enabled the building of a more complete profile for each occupation and provided an opportunity to crosscheck the supply data obtained from the regulatory bodies and professional associations.

1.2.4.2 Education and Training Data Issues

Education and training information on funding, programs, students, faculty and clinical education placements was not available from a central source. This made it challenging to collect information necessary for planning on an ongoing basis. For instance:

- Comprehensive faculty demographic data was mostly limited to St. Francis Xavier and the Faculty of Medicine at Dalhousie;
- While MPHEC was able to provide much of the requested information, there were caveats. MPHEC was unable to provide information on the number of applicants or first year enrolments, so applicant to enrolment ratios, a key measure of student competitiveness for entry into programs, were calculated from in-field data collected and provided by the individual educational institutions;
- MPHEC program enrolment data was only available for *all years* of program study (versus program enrolment *by year* of study). Thus, MPHEC data could not be used to derive program attrition rates on a year-to-year basis;
- A challenge in providing trend data from 1990 to 2001 was a shift in 1999 from the University Student Information System (USIS) to the Enhanced Student Information System (ESIS). Data was extracted from both systems to fulfill the request, but required some programming to do so; and
- MPHEC was unable to provide information on "highest level of completed prior education", as this element was not collected in USIS. Statistics Canada has defined a highest level of education element in its ESIS system. However, if an

institution currently did not store this information, they were not required to populate the element. MPHEC sampled the 1999-00 and 2000-01 data with regard to this data element and unfortunately, at the time of the query, all Nova Scotia institutions reported "99" (i.e. unknown).

The availability and accessibility of data from the individual education institutions was also significantly affected by changes in technology. The installation of new information systems at Dalhousie restricted access to education records to three years, limiting trend analysis. As well, St Frances Xavier had recently converted its information system, and could not easily access older data.

Basic information on student enrolments was not reported in a standardized format. For example, Dalhousie reported total program enrolments by people count for each academic year, whereas St FX reported total program enrolments on a full course equivalent basis. This made it more difficult to compare student characteristics across programs and educational institutions.

1.2.4.3 Management and Employment Data Issues

Technology played a major role in determining the accessibility of data. In acute care settings, no common software system was in place, with multiple human resource (HR) software systems existing both between and within DHA settings. As well, within each facility, demographic and financial related HR information is typically housed separately, so the gathering of this information proved resource intensive.

Within continuing care facilities, facility size mattered, relative to data infrastructure and data reporting capabilities. For the most part, larger facilities were able to respond electronically, but they encountered many software reconciliation challenges. The smaller facilities responded mostly on a manual basis, but were challenged by the lack of resources in responding to the breadth of data indicators requested. The response rate in continuing care facilities ranged from 28% for Residential Care Facilities to 47% for nursing home facilities.

As there was no central repository of employment-related data to provide information at the occupation level, employee classifications (1,000+ in acute care) were assigned and validated by each DHA to an occupational group. This matching process enabled individual employees to be rolled up from their classification level to their occupation level, by facility and by DHA. Similarly, over 220 classifications were assigned to about 15 occupations in continuing care. The employment data collection, preparation, analysis and validation process resulted in a significant and iterative change of scope for this activity.

2.0 HEALTH HUMAN RESOURCES IN CONTEXT

Health Human Resources (HHR) planning is still in its early days, with most planning activity a response to recent shortages in key health professions. The planning that has taken place has generally been limited to physicians and nurses, with limited attention given to other health occupations and to the role of unregulated and unpaid health care providers.

A review of health care systems in Australia, France, Germany, Sweden and the United Kingdom, completed in March 2003 by the Canadian Health Services Research Foundation (CHSRF) for the Advisory Committee on HHR of the Federal/Provincial/Territorial Conference of Deputy Ministers of Health, declared it "remarkable that the market for human resources in health care has been relatively under-researched and under-managed in all developed countries (sic) health systems."²

Among other conclusions, the review found that:

- All countries have a partial approach to planning and ignore relationships between health professionals;
- Despite attempts to plan, all countries have experienced cycles of shortages and surpluses of health professionals, usually in the nursing workforce;
- Performance problems are perpetuated by poor access to information, weak management and an absence of systematic continuing education and re-accreditation; and
- While there is some control of overall staff numbers, little or no attention has been paid to the distribution of medical and nursing staff between specialties and regions.³

2.1 NATIONAL INITIATIVES IN CANADA

Governments in Canada gave joint formal recognition to the issues surrounding HHR in September 2000 when First Ministers agreed to coordinate their efforts on the supply of doctors, nurses and other health care personnel. This was followed up a year later with an agreement by provincial premiers to improve planning and co-operation on training and recruitment.

A number of national Human Resources Development Canada (HRDC) studies are underway, or recently completed, including:

- Nursing Sector Study;
- National Human Resource Study of Canadian Physicians;
- Canadian Home Care Human Resources Study;
- The Oral Health Care Human Resources Study;
- Pharmacy Occupational Study; and
- Social Workers' Occupational Study.

In 2001, HRDC launched a two-phase study designed to develop a long-term labour market strategy for nurses. The Canadian Medical Forum is leading a study of Canadian doctors, with the

goal being to develop a physician human resource strategy. The National Home Care Resources study is a three-phase effort to determine priorities for meeting human resources needs in the growing home care sector. Sectoral studies were also initiated at the national level for pharmacy, oral health care, and social work.

Despite this activity, both the federal Commission on the Future of Health Care in Canada (the Romanow Commission) and the Senate Committee on Social Affairs, Science and Technology (Kirby Committee) presaged many of the findings of the international review in its comments on the state of HHR planning in this country. For instance, the Romanow report, released in 2002, found that HHR planning in Canada is plagued with several problems, for example:

- There is little evidence that planning adequately considers population demographics and trends, the broader determinants of health, specific needs of patients or the skills and knowledge of health care providers;
- Planning approaches are often based on one-time estimates focusing on a single discipline;
- HHR policies focus on quick fix solutions;
- Lack of adequate planning has led to over-use of casual and part-time workers, contributing to a declining quality of work life; and
- Planning has been limited to individual provincial, territorial and community initiatives and lack national co-ordination.⁴

The Romanow Report pointed out the limited information available on effective strategies for encouraging different members of the workforce to work together, and the lack of standardized HHR information to make possible tracking of supply and trends from province to province. The Report called for action to fill the gaps in information on trends in supply, distribution, mobility, and composition across the country. "This information base is essential for long-term effective planning for the future of Canada's health workforce."⁵

The lack of co-ordination among various HHR initiatives underway was also seen as a concern. Romanow recommended a leadership role in addressing HHR issues for the proposed Health Council of Canada, working with the existing intergovernmental Advisory Committee on HHR and employing the research and analysis capabilities of Canadian Institute for Health Information (CIHI) and the CHSRF "to address long-term issues and make a lasting and profound change in the future of Canada's health workforce."⁶

The Kirby Report also suggested a possible role for a national coordinating body for HHRs, to be composed of representatives of key stakeholder groups and of the different levels of government. The Kirby Report proposed a possible mandate would include:

2. Bloor, Karen and Alan Maynard, "Planning human resources in health care: towards an economic approach. An international comparative review," Canadian Health Services Foundation, 2003, p. 1

3. Ibid, p.i

4. Commission on the Future of Health Care in Canada, "Building on Values: The Future of Health Care in Canada," Final Report, 2002, pps. 110-111

5. Ibid, p.108

6. Ibid, p.113

- Disseminating up-to-date data on human resource needs;
- Coordinating initiatives to ensure that adequate numbers of graduates are being trained to meet the goal of self-sufficiency in HHRs;
- Sharing and promoting best practices with regard to strategies for retaining skilled health care professionals and coordinating efforts to repatriate Canadian health care professionals who have emigrated to other countries;
- Recommending strategies for increasing the supply of health care professionals from under-represented groups, such as Canada’s Aboriginal peoples, and in under-served regions, particularly the rural and remote areas of the country; and
- Examination of the possibilities for greater coordination of licensing and immigration requirements between the various levels of government.

The Kirby Report also suggested the federal government work with provincial governments to ensure that various education and training programs for health care providers receive funding required to permit necessary enrolment expansion. Furthermore, that student loan programs be available to health care professionals and that modifications be made to ensure the impact of increases in tuition fees does not lead to barriers for students in lower socio-economic circumstances. Increasing representation of students with aboriginal backgrounds in medical and nursing programs was also seen as a priority.

2.2 PROVINCIAL HHR INITIATIVES IN CANADA

The responsibility for coordination and implementation of HHR planning initiatives typically rests within provincial health ministries. Some provinces have established separate advisory committees and working groups to assist in ongoing HHR planning activities. The committees, comprised of key stakeholder representatives, serve as a resource to provide proactive advice to government and ensure provincial HHR planning efforts are coordinated. Table 2.1 summarizes common themes of HHR initiatives introduced recently by provincial governments.

Current or impending shortages in the supply of health occupations have resulted in the introduction by provincial governments of an assortment of recruitment and retention initiatives. To date, the overwhelming focus of these initiatives has been on physicians and nurses, with modest attention paid to other occupations. However, growing recognition of shortages of other occupations has led several jurisdictions to identify future priorities for recruitment and retention for a number of allied health occupations.

The most common strategy adopted by provinces to address supply shortages includes increasing enrolments in education and training programs. Nearly every province has approved funding for increased enrolments in nursing and physician education programs and several provinces have expanded enrolment (or increased out of province seat purchases) in allied health education programs. Payment of financial incentives to students and/or practicing workers is also a popular approach adopted by provinces, including bursary and debt repayment plans. Incentives to practicing physicians and nurses are also common, which include funding for relocation, signing bonuses and guaranteed minimum annual billings for physicians in rural areas. Return for service requirements are a norm for many provinces.

A more recent focus of recruitment initiatives involves addressing quality of work-life concerns. Increasingly, work life balance issues are noted as a priority for nurses and physicians. There is an increasing focus on professional practice issues associated with physicians practicing in rural and remote communities, such as on-call responsibilities and lack of access to continuing medical education opportunities. A number of provinces have initiated task forces and working groups to study nursing work life issues. Approaches used to improve the quality of nurses work life include early assistance and return to work programs, funding for equipment (e.g. patient lifts and lift teams) and more flexible scheduling arrangements.

Table 2.1: HHR Provincial Initiatives in Canada – Common Themes

HHR Planning & Coordination	Recruitment & Retention	Education & Training	Quality of Work Life	Legislation & Regulation
<ul style="list-style-type: none"> • Responsibility of DOH policy/planning • Working groups and Advisory Committees: <ul style="list-style-type: none"> – ‘Functional’ working groups (data, planning methodology, education) – Nurse and physician – Allied Health • Regulatory/Legislative Advisory Boards 	<ul style="list-style-type: none"> • Focused on Physicians/Nurses • Education Enrolments • Direct Financial Incentives • Quality of Work Life • Evaluation Frameworks 	<ul style="list-style-type: none"> • Continuing Education • Clinical Placements/ Preceptor support • Credential Creep • Distance Education • Accelerated Program Delivery • Cooperative Education/Training 	<ul style="list-style-type: none"> • Provider Health • Workplace Environment • Leadership Capacity • Orientation Practices 	<ul style="list-style-type: none"> • Risk-based Regulatory Models • Scopes of Practice • Collaborative Practice Agreements and Delegated Medical Acts • Mobility

Other strategies being used to address shortages include:

- Developing promotional material, participation in job fairs and advertising in national and international publications;
- Streamlining the credentialing process (assessing prior education and skills to practice) of international medical graduates;
- Training certain health professionals to substitute for occupations in underserved areas, and greater use of multi-skilling;
- Expanding of rural training opportunities and 'adopt a student' programs; and
- Changing admission policies of medical schools to increase rural intake

A drawback of the various recruitment initiatives being offered is that few mechanisms exist to assess their effectiveness and success. Recruitment incentives are often implemented without an evaluation framework, so it becomes difficult to determine their effectiveness over time. Some provinces have established committees to monitor the implementation of recruitment and retention strategies, including the identification of specific targets and performance indicators. Unfortunately, these instances are still rare.

In addition to increasing enrolment in education programs other priority areas for education and training include improving access to continuing education opportunities and distance education opportunities. A recent priority for some provinces includes improving the coordination of clinical placements and the introduction of greater support for preceptors. There is increasing recognition that inadequate resources for clinical placements and availability of preceptors is a key barrier to the expansion of health discipline education programs.

Scope of practice is clearly a priority for most jurisdictions. Most provinces are examining their professional legislation and regulation in an attempt to allow occupations to practice to the full extent of their qualifications and abilities. For example, legislation authorizing the practice of nurse practitioners has been passed in a number of jurisdictions, including Nova Scotia. These regulatory changes are typically accompanied by policies and collaborative practice agreements to outline respective roles and responsibilities. Provinces have also introduced legislative and regulatory changes to comply with the Mutual Recognition Agreement on Internal Trade.

2.3 NOVA SCOTIA HHR PLANNING INITIATIVES

Like other jurisdictions, Nova Scotia's initial efforts in HHR planning were designed to deal with short-term problems, and were focused at the provincial level on physicians, nurses and more recently, medical laboratory technologists and advanced care paramedics.

Beginning in 2001, Nova Scotia, as did the other Atlantic Provinces, undertook comprehensive studies of its HHR as part of regionally-funded HRDC initiatives. HHR planning activities have also been included in broader strategic health plans. The Nova Scotia Department of Health 2003-04 business plan points out that HHR are one of the biggest challenges facing the Canadian health system. The business plan outlines four key initiatives in support of the high priority placed on the areas of recruitment, retention, and retraining of health care professionals. Specific initiatives supporting nurses, medical laboratory technologists and physicians are described.

Originally introduced in 2001, the Nursing Strategy for 2003-04 includes funding support for additional seats in accelerated nursing, Licensed Practical Nursing (LPN) - Registered Nursing (RN) bridging, baccalaureate nursing programs and a continued focus on orientation, continuing and specialty education to support recruitment, retention and renewal of the nursing workforce. In addition, the business plan announced that:

- Nova Scotia will offer bursary assistance and purchase seats in the New Brunswick Community College system to increase the number of medical laboratory technologists.
- In the 2003-04 academic year eight new seats are to be added to the first year class of the Dalhousie Faculty of Medicine.

An ongoing priority for the Department of Health is to develop, pilot, recommend and oversee the implementation of a comprehensive physician resource plan for Nova Scotia. A Physician Resource Planning Steering Committee has a mandate to develop and apply a methodology for determining the optimum number and distribution of physicians by type and level of service. The Committee is currently engaged in a provincial consultation process with physicians.

Your Health Matters, released by the DOH in 2003 advocated a new approach to training, recruiting and retaining health care professionals. "Health care professionals must also be supported in doing their jobs differently - working in teams to balance their workloads more efficiently and improve care to patients".⁷

7. Nova Scotia Department of Health, "Your Health Matters: Working Together Toward Better Health Care," 2003, p.17

In 2001, the Health Care Human Resource Sector Council (HCHRSC) completed a Baseline Assessment of the Continuing Care Labour Force in Nova Scotia. The HCHRSC also completed a Human Resource Issues Study in Continuing Care in October of 2002.

2.4 ATLANTIC CANADA HHR PLANNING INITIATIVES

Each of the Atlantic provinces has recently undertaken studies of its HHR. As part of these regionally funded HRDC initiatives, the number of health occupations studied in Atlantic Canada has expanded from the traditional consideration of physicians and nurses to include registered nurses, licensed practical nurses, physicians and allied health professionals in Newfoundland; 30 or so occupations respectively in Nova Scotia and New Brunswick, and more than 50 occupations in Prince Edward Island.

Education and training is an important component of HHR. Although the Atlantic Provinces are inter-dependent in education and training, the planning of HHR has traditionally occurred independently within provincial and local health region boundaries.

Concurrent with its provincial baseline assessment of its own HHR, Nova Scotia led in the preparation of a project proposal in support of a broader Atlantic initiative. In 2002-03, Nova Scotia worked in consultation with health and education representatives from each Atlantic province in coordinating the development of this joint initiative, which would incorporate a regional HHR planning perspective, with specific focus on education and training requirements.

Each of the Atlantic provinces HRDC funded studies on its HHR would be key inputs to the proposed Atlantic Study (Atlantic Education/Training Planning for Health Disciplines). The Nova Scotia Study has already started to build the foundation for this proposed Atlantic initiative by examining provincial education and training issues related to health disciplines and by compiling an inventory of training programs and statistics for the health professions. The intent of the joint HRDC funded project is to work with educational institutions to establish an *integrated information* base to better enable informed decision-making on production, recruitment, funding, and accountability for education and training of health disciplines in the Atlantic Region.

3.0 THE HEALTH CARE ENVIRONMENT

3.1 EMERGING HEALTH CARE CHALLENGES

HHR Planning does not exist in a vacuum. To be successful, it must be integrated into overall health care planning, an activity which has been described as a “somewhat messy and unfinished project...always ... a work in progress.”⁸

This ‘messiness’ derives from the fact that health care planning in general and HHR planning in particular are subject to a range of forces. These are changing the health care system from one focused on hospitals, doctors and nurses to one that includes the community and involves the whole range of health care providers.

Decter (2000) has evoked the image of “Four Strong Winds” to describe the challenges facing health care, listing those winds of change as:

- A focus on wellness;
- New technologies;
- Changing consumer expectations; and
- Demands for fiscal accountability and value.⁹

There are other forces – including demographics, decentralizing of decision-making and legislative and regulatory factors – which are influencing the health care environment as well. They are dealt with later in Section 3, but first a look at each of the four winds of change.

One of the more significant is the *focus on wellness*, which represents a new way of thinking about the health care system. It is no longer considered sufficient just to manage illness or to judge success solely by procedures performed or patients served. Most governments have adopted definitions of health similar to that of the World Health Organization (WHO), which recognizes health as “more than the absence of disease, as a resource for everyday living.”¹⁰ Under this formulation, population health status can be measured – for example – in terms of:

- Self-rating - in 1996-97, 25% of Canadians described their health as excellent, 38% rated it very good;
- Positive mental health - in 1994-95, 49% of Canadians reported high self-esteem;
- General health and function - in 1996-97, one-third of Canadians described themselves as problem free, with over 90% indicating a high level of health;

8. Armstrong, Pat and Hugh Armstrong, "Planning for Care: Approaches to Health human Resources Policy and Planning," Discussion Paper No. 28, Commission on the Future of Health Care in Canada, 2002.

9. M.B. Decter, "Four Strong Winds: Understanding the Growing Challenges of Health Care," Stoddart Publishing, Toronto, 2000

10. Federal, Provincial and Territorial Advisory Committee on Population Health, "Statistical Report on the Health of Canadians," 1999, p.215

- Long-term activity limitation - in 1996-97 almost four million Canadians reported a disability or handicap or being limited on a continuing basis because of a health problem; and
- Rates of obesity, allergies, teen pregnancies and underweight births, measured over time.

Hand-in-hand with a broader definition of health is a growing recognition that many socio-economic and environmental factors determine health status. As the Romanow Commission reported:

*During our public hearings, many presentations focused on the need to improve our understanding of the determinants of health. I heard that the quality of the air we breathe, of the water we drink, and of the food we eat directly affects our health and our health care system. I learned that educated, employed and physically active Canadians are far more likely to be healthy than those who are not, and that spiritual, emotional and physical well-being are often inextricably linked. I also heard that lifestyle changes can markedly reduce the incidence and severity of many major and debilitating diseases.*¹¹

By way of quantifying the impact of health determinants, the inter-governmental committee on Population Health, reporting in 1999, found that only 19% of respondents with less than a high school education rated their health as excellent, compared with almost 30% of university graduates.¹² The committee also found that Canadians with the lowest income were five times more likely than those with the highest to report their health as only fair or poor,¹³ while unemployed people have a disproportionate share of health problems, including depression, other forms of morbidity and reduced life expectancy.¹⁴ Nova Scotia's Clinical Services Steering Committee found a positive correlation between the prevalence of low income in a population and greater hospital utilization.¹⁵

New technologies are already having a major impact, but have an even greater potential to improve health outcomes for Canadians, particularly in the area of information technology. A comprehensive system of information management will allow health care providers, managers and policy makers to share information, while electronic health records, currently used by only a small fraction of health providers, will be an important element in better diagnosis and treatment of patients. The Romanow Commission argued that electronic records will improve efficiency by eliminating the time-consuming task of managing paper records, and provide patients with easy access to their personal health care information. But the Report also points out that advances in technology create ethical issues, particularly in areas like

biotechnology and patient privacy, and challenge human resource managers to ensure there are programs in place to train people to manage and operate new health technologies

The Romanow Commission found that *consumer expectations* were primarily focused on improvements in waiting times for certain diagnostic and surgical procedures. However, others suggest there will be wider pressures from consumers to measure quality and appropriateness of care. Romanow recommended that a national system of electronic health records include a system similar to on-line banking:

*...where individuals could log onto the system using a personal identification number. At the click of a mouse, they would have access not only to their personal health information but also to a broader base of general information on health issues. With this information, individuals can play a more direct role in managing their own health.*¹⁶

Just as consumers are asking more from the health care system, so are governments. They not only fund 70% of the costs but are responsible for the smooth running of the system on behalf of consumers and voters. Faced with *fiscal constraints*, governments are demanding *accountability and value* for money spent on health care. For example, in conjunction with Canadian Institution of Health Information (CIHI), Ontario has been publishing annual report cards on the performance of hospitals across the Province. The Romanow Commission, even while urging substantial new investment in health care, echoed the theme of accountability when it bemoaned the fact that "we know far more about the resources and the dollars being spent than we do about the return on those investments."¹⁷

The accuracy of the "wind" forecasts and the timeliness with which decision-makers respond to their shifts will continue to be a matter of debate. Nevertheless, there is a growing conviction among governments and health care experts that the system established 40 years ago must be changed. The direction of change, towards what Romanow called "a seamless, integrated array of services to Canadians, from prevention, to promotion to primary care, to hospital, community, mental health, home and end-of-life services",¹⁸ will have a profound impact on HHR planning.

3.2 AN EVOLVING SYSTEM OF SERVICE DELIVERY

The seamless, integrated service delivery system is evolving albeit slowly. There has been a move away from hospital-based care by doctors and nurses, to alternative delivery systems. While new technology and procedures have allowed patients

11. Commission on the Future of Health Care in Canada, "Building on Values: the Future of Health Care in Canada," Final Report, 2002, p. xix-xx

12. Population Health, op cit. p. 30

13. Ibid, p. 37

14. Ibid, p.44

15. Clinical Service Steering Committee, "Making Better Health Care Decisions for Nova Scotia," 2001, p. 29

16. Romanow Commission, p.138

17. Ibid, p. xix

18. Ibid, p. xviii

to be discharged more quickly from hospitals, the home care services and drugs they require after discharge has not always been provided.

Moreover, changes which have taken place in service delivery have often been reactive or driven by the need to cut costs, with negative consequences for HHR planning. As Romanow (2002) states: "for the past two decades, continuing changes in how health care services are delivered, combined with efforts to contain costs in every province and territory, have taken their toll on Canada's health workforce."¹⁹ Now, however, that workforce is being challenged again by the need to re-design roles and change scopes of practice to deliver an integrated, comprehensive and community-based approach to health care.

3.2.1 Primary Care Reform

Primary care refers to the initial point of contact between individuals and the health system. Traditionally, primary care delivery has been provided by family doctors and general practitioners, operating solo or in small group practices. It has focused on service delivery. Reform is predicated on the notion that offering a wider range of services – primary health care – through inter-disciplinary teams will better support the health and wellness of the population.²⁰

The vision foresees a range of health care providers collaborating with government departments, the private sector and community organizations. Population health will improve through a community-based primary health care system that tends to the health needs of the population while placing greater emphasis on prevention, health promotion and on measures to influence the determinants of health.

In a more immediate time frame, primary care reforms may also alleviate pressure on hospital emergency departments and provide solutions to the shortage of family doctors in some areas. The Kirby Committee envisaged care being provided by group practices or clinics, operating 24 hours a day, seven days a week, with the method of compensating doctors changed from fee-for-service to some form of blended remuneration combining capitation, fee-for-service and other incentives.²¹

3.2.2 The Nova Scotia Response

Nova Scotia has been moving toward primary care reform for at least a decade. The recommendations of a 1994 task force report led to a decentralization of health system governance through the establishment of District Health Authorities (DHAs) and Community Health Boards (CHBs) with

responsibility for assessing and planning for community health needs. In 2000, the Strengthening Primary Care Initiative was established, with demonstration projects in four communities. The Initiative allowed for evaluation of collaborative practice models, information management approaches, and alternative compensation options for physicians.

In February, 2001, the Nova Scotia Clinical Services Steering Committee filed its report, noting that "the health care system has, and will continue to evolve, towards a decreased reliance on in-patient acute services."²² The Committee report went on to say that the quality of our health care system will no longer be judged by the number of beds and the number of hospitals. "Services must be in the right place with the right resources for Nova Scotians."²³

Also in 2001, the Nova Scotia government appointed an Advisory Committee on Primary Health Care Renewal, which released its report in May, 2003. The report recommended an incremental approach to primary health care, leading eventually to a primary health care system offering:

- Basic emergency services
- Communicable disease prevention and control
- Community mental health services
- Community supports
- Continuing care
- Dental health services
- Environmental health services
- Health promotion (including community development)
- Healthy child development
- Nutrition services
- Primary maternity care
- Prevention and treatment of common diseases and injuries
- Rehabilitation services
- Sexual health and family planning
- Other publicly funded services (housing, income assistance, occupational health and safety etc.)

It will be some time before such a primary health care system is fully implemented in Nova Scotia. In the meantime, however, the direction of health care planning is clear. Nova Scotia is moving away from traditional models of care and service delivery based on hospitals and doctors' offices. It is moving toward community-based models that place greater emphasis on multi-disciplinary teams and networks of providers working together to address patient care needs.

The evolving system of care will pose a number of human resource issues. Nova Scotia, like every other province and territory, is already challenged to educate and train, recruit and maintain enough health providers, and/or to convince them to move to under-serviced areas. Now there is an additional

19. Ibid, p.91

20. Nova Scotia Advisory Committee on Primary Health Care Renewal, "Primary Health Care Renewal: Action for Healthier Nova Scotians," 2003, p.vii

21. Senate Committee on Social Affairs, Science and Technology

22. Steering Committee, op. cit, p. 9

23. Ibid, p.11

challenge, to encourage providers to adapt to changing roles, re-examine scopes of practice and acquire the skills needed for a new system of service delivery.

Among the demands that may be made of health providers:

- Acceptance of change in work routines;
- Changed relationships with other health professionals;
- Understanding of team behaviors; and
- Ability to form partnerships with families, community members or complementary providers.

Policy makers will also face new demands and challenges. They will need to ensure HHR policies and initiatives go beyond physicians and nurses to include other members of the health care team. In addition, the education and training of new health providers will need to be revised to reflect new methods of service delivery. Finally, as the Romanow Commission has suggested, “sensitive issues such as wage settlements, scopes of practice and working conditions will need to be addressed in an open and direct way.”²⁴

In addition to these general issues, the DOH business plan for 2003-04 describes a number of specific activities and initiatives which will likely affect HHR planning. These include:

- (1) A “Diversity and Social Inclusion in Primary Health Care” initiative to involve primary health care leaders and culturally diverse populations in developing guidelines and policies that address diversity and social inclusion issues in primary health;
- (2) A plan to improve French language health services for the approximately 37,000 Nova Scotians whose first language is French;
- (3) Development and implementation of a provincial palliative care service delivery model;
- (4) Finalization of the methodology to determine the optimum size, scope, and distribution of continuing care services;
- (5) Enhancement of cardiac care and development of a coordinated approach to planning and delivering cardiac services;
- (6) Enhancement of the “Healthy Beginnings” home visiting program;
- (7) Implementation of core service standards and development of a monitoring plan for appropriate, effective mental health services;
- (8) Negotiation of Alternative funding remuneration for physicians; and
- (9) Development of Nova Scotia-specific health indicators reports and other accountability and progress reports.

3.2.3 Demographics – An Aging Population

Nova Scotia’s population, like all of Canada’s, has been getting older. As table 3.1 shows, between 1991 and 2002, the percentage of Nova Scotia’s population aged 65 and over increased from 12.5% to 13.6%. The 65+ population in the country as a whole jumped by one third (Table 3.2) in the 20 year span from 1980 to 2000.

Table 3.1: 65+ Population in Nova Scotia, 1991 and 2002

Year	Pop. 65+	% pop. 65+
1991	114,272	12.5%
2002	128,300	13.6%

Source: Statistics Canada

Table 3.2: Growth in 65+ Population in Canada, 1980, 1990 and 2000

Year	% 65+	Change from 1980
1980	9.4%	—
1990	11.3%	20.2%
2000	12.5%	33.0%

Source: Statistics Canada

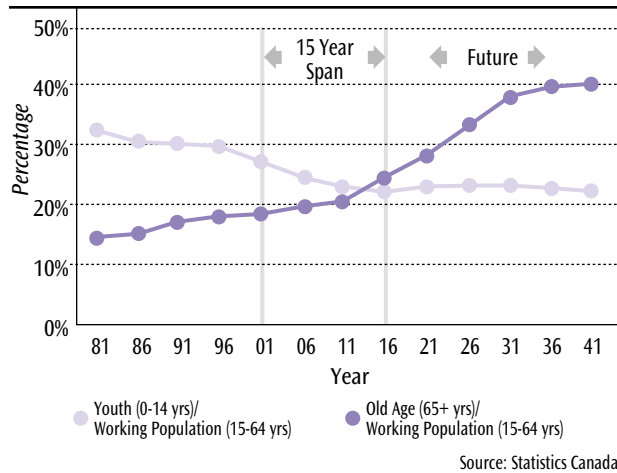
Nationally, the population is expected to get slightly younger later in this decade, with the 65+ and older group declining to 11.5% of the population by 2011. However, when the first of the baby boom generation (those born between 1946 and 1966) begin to turn 65 in 2011, the age of the population will start to increase rapidly. Statistics Canada estimates that those individuals over 65 will account for 17% of the population in 2016, 19% in 2021 and 21% in 2026.²⁵ For Nova Scotia, the elderly will account for an even greater share of the population, rising to 25% in 2026.

Figure 3.1, shows the shift that will take place in the dependency of the young (0-14 yrs) and old (65+ yrs) on its working population (15-64 yrs). Over the next 15 years (2001-2016), because of declining birth rates, the dependency of the youth on the working population will decline (5%). Similarly, as the 65+ population increases over this timeframe, the dependency of the elderly on its working population will increase (5%).

24. Romanow ,op.cit. p.92

25. Statistics Canada website, "Population projections for 2001, 2006, 2011, 2016, 2021 and 2026, July 1," Updated Sept. 11, 2003.

Figure 3.1: Youth and Old Age Dependency on Working Population in Canada



As the figure indicates, there is a 10 to 15 year period before the growing population of seniors causes a significant increase in the overall burden on the working age population. In the interim, preparing to meet the health needs of an older population will complement the changes in health care delivery arising from primary care reform. Providing care to a larger population of seniors will likely mean the expansion of services in areas such as home care and long term care. It will provide opportunities to further develop a team approach, involving health professionals, volunteers and family members. It will encourage the use of relevant technologies.

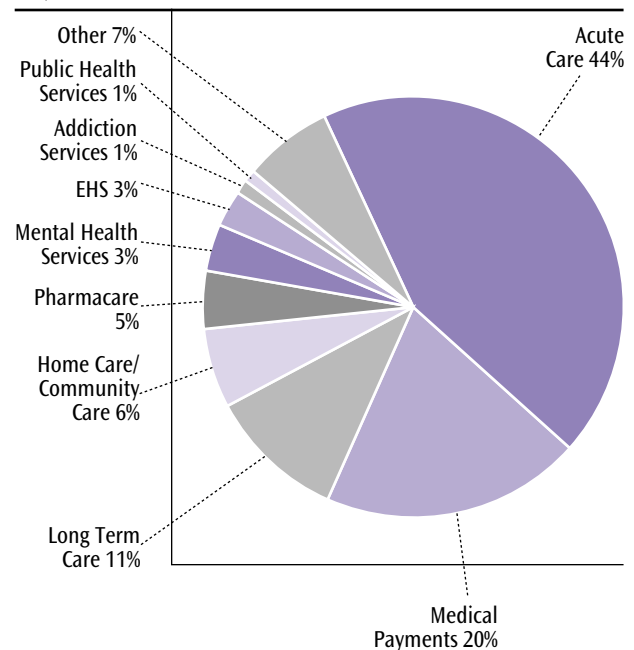
3.3 FUNDING HEALTH CARE AND HUMAN RESOURCES

The health industry is labour intensive, with up to 70 cents of every dollar paid out in wages, salaries, and fees for health care workers. The overall financial shape of the health care system will have a major bearing on our ability to attract, train, and retain the health workers we needed.

3.3.1 Expenditure Patterns

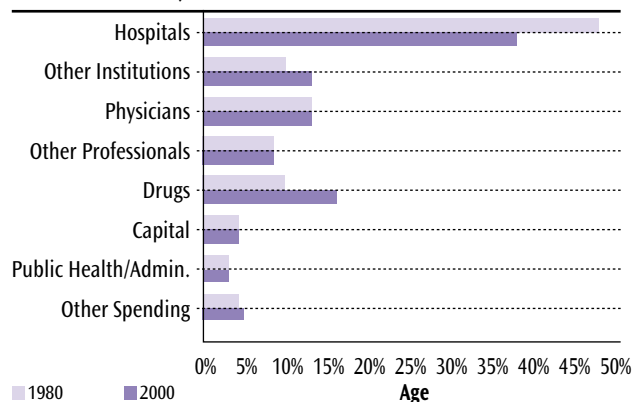
In the current (2003-04) fiscal year, Nova Scotia provincial government spending on health is expected to total more than \$2 billion (Figure 3.2). It is estimated that almost half of the total (43.6%) will be spent on acute care, with medical payments the next largest expenditure at \$425.7 million (20.2%).

Figure 3.2: Total Health Care Program Spending (DOH), NS, 2003-04



During the 1990s Nova Scotia, like most other provinces and territories across Canada, focused its health reforms on restructuring of hospital services. A common theme associated with health reforms has been reduced reliance on acute care hospitals and increased reliance on the broader health system. This is reflected in the reduction of the provincial share of health expenditures accounted for by hospitals over the past two decades. The percentage of total expenditure for hospital care decreased from 48% of total expenditures in 1980 to 38% in 2000 (Figure 3.3).

Figure 3.3: Percentage Distribution of Preliminary Nova Scotia Health Expenditures by Use of Funds 1980 and 2000, Current Dollars



The reduction in the proportion of spending for hospitals is reflected in the decline in acute care usage in Nova Scotia. Rates of use of acute care beds, as measured by patient days per 1,000 population, went from 1,396 days per 1,000 population in 1992-93 to 860 days per 1,000 population in 2000-01.²⁶ This downward trend seems to have plateaued in recent years, and it is possible that further investments in home care in Canada may not allow further reduction in acute care requirements.²⁷

An examination of more recent expenditures in Nova Scotia, reveals hospital expenditures continue to rise, albeit at a slower pace than in four other areas – emergency health services, home/community care services, long term care services and pharmacare services, all of which are increasing at a rate of 10-15% a year (Table 3.3) in recent years.

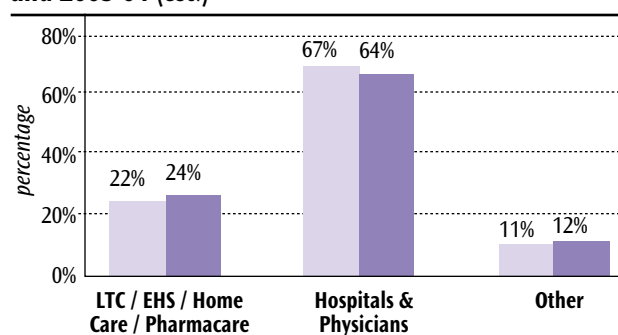
Table 3.3: Change in Expenditure by Health Care Category, 2000-04

	2000-01 (\$000)	2001-02 (\$000)	2002-03(F) (\$000)	2003-04(E) (\$000)	% Change 2000-04
Acute Care	\$800,882.6	\$820,783.8	\$895,390	\$919,873.4	14.85%
Physicians	\$361,573.0	\$370,006.0	\$408,531	\$425,694.0	17.73%
Long Term Care	\$171,827.0	\$183,179.0	\$199,590	\$222,542.0	29.52%
Home/Community Care	\$96,482.0	\$102,548.0	\$114,393	\$126,643.0	31.26%
Pharmacare	\$73,260.0	\$81,045.0	\$85,500	\$95,692.0	30.62%
Mental Health	\$63,098.8	\$64,988.6	\$71,617	\$73,071.7	15.81%
Emergency Health	\$44,576.0	\$52,479.0	\$57,187	\$65,624.0	47.22%
Addiction Services	\$16,807.9	\$16,854.5	\$18,388	\$19,131.4	13.82%
Public Health	\$15,412.7	\$15,934.1	\$17,453	\$17,839.5	15.75%

Source: Province of Nova Scotia, Estimates 2002-03, 2003-04

The result is that the share of the health care dollar consumed by these four areas is estimated to increase from 22.1% in 2000-01 to 24.2% in 2003-04 (Figure 3.4). In comparison, the share consumed by hospitals and physicians is expected to drop to 63.7% in 2003-04 from 66.5% in 2000-01.

Figure 3.4: Health Care Program Spending 2000-01 and 2003-04 (est.)



Source: Province of Nova Scotia, Estimates, 2002-03, 2003-04

3.3.2 Expenditure Levels

The 2002 edition of *National Health Expenditure Trends* published by CIHI, estimated that Nova Scotians, on average, spent \$3,304.02 each on health goods and services. About 70% of this expense (\$2,296) was spent on their behalf by the three levels of government (federal, provincial and municipal). The remaining 30% (\$1,007) came from private sources, either directly out-of-pocket or from private health insurance. This total figure of over \$3,300 per head, represents three times more than Nova Scotians spent per person on health care than in 1982. Even when inflation is accounted for, per capita spending in 2002 was more than 70% higher than what it was twenty years ago (i.e. \$2,940 in 2002 vs \$1,711 in 1982 per Nova Scotian).

Such increases have led to questions about whether or not we can still afford and sustain our health care system. One way of answering that question is to look not just at how much more is being spent on health care, but what it represents as a proportion of how much more there is to spend on everything else – measured as the Gross Domestic Product (GDP).

In 2002, the GDP was \$27,986.88 for each Nova Scotian. Out of that, \$3,304.02 was spent on health care, or 11.8%. In 1982, our GDP was \$10,681.39 per head, out of which was spent \$1,068.72, or 10%, on health. In the last 20 years there has been an 18% increase, less than 1% a year – in the health industry's share of the Nova Scotia economy. As the table shows, growth in the country as a whole was somewhat greater, at just over 1% a year (Table 3.4).

Table 3.4: Change in Health Spending per Capita as % of GDP, Canada and Nova Scotia, 1982 and 2002

	GDP/ Capita 1982	Health/ Capita 1982	Health/ GDP 1982	GDP/ Capita 2002	Health/ Capita 2002	Health/ GDP 2002	Change 82-02
NS	\$10,681	\$1,069	10.00%	\$27,987	\$3,304	11.80%	18%
Canada	\$15,124	\$1,225	8.10%	\$36,276	\$3,572	9.80%	21%

Source: "National Health Expenditure Trends," 2002, CIHI

At 11.8% of the GDP, Nova Scotia ranks fifth among Provinces, behind Manitoba and the other Atlantic provinces. In contrast, Alberta spent only 7.6% of its GDP on health care.

26. Department of Health 2000-2001 Statistical Report

27. Understanding Canada's Health Care Costs, Interim Report

Even though health spending accounts for a significantly greater share of Nova Scotia's GDP than the national average, this does not mean that Nova Scotia spends more per capita on health. The reason for the higher percentage of health spending per capita is that the denominator, GDP per capita, is much lower in Nova Scotia. As Table 3.5 shows, total per capita health spending (\$3,304) in Nova Scotia, public and private, is actually the second lowest among the provinces and territories and is 7.5% below the national average (\$3,572).

Table 3.5: Total Health Expenditure per Capita by Province and Territory, 2002 (Forecast)

Province/Territory	\$ per Capita
Nunavet	\$6,467
North West Territories	\$6,142
Yukon	\$4,568
Manitoba	\$3,955
British Columbia	\$3,798
Alberta	\$3,761
Ontario	\$3,674
Newfoundland and Labrador	\$3,587
Average	\$3,572
Saskatchewan	\$3,449
New Brunswick	\$3,432
PEI	\$3,365
Nova Scotia	\$3,304
Quebec	\$3,182

Source: "National Health Expenditure Trends," 2002, CIHI

Another factor to consider is that increases in health care spending have been moderating for most of the last decade. During the 1980s the increase both nationally and in Nova Scotia was considerably higher than it has been the last ten years.

As table 3.6 shows, in constant dollars health care spending increased at a rate of approximately 4.5% a year from 1982 to 1992 in both Nova Scotia and nationally. But in the most recent decade from 1992 to 2002, increases averaged 3.75% per year nationally and less than 3% annually in Nova Scotia.

Table 3.6: Comparative Rates of Increase in Health Expenditure, Nova Scotia and Canada, 1997 Constant Dollars

	1982	1992	% Inc.	2002	% Inc.
Nova Scotia	\$.472B	\$ 2.145B	4.58%	\$ 2.778B	2.95%
Canada	\$ 51.21B	\$ 74.17B	4.48%	\$ 101.95B	3.75%

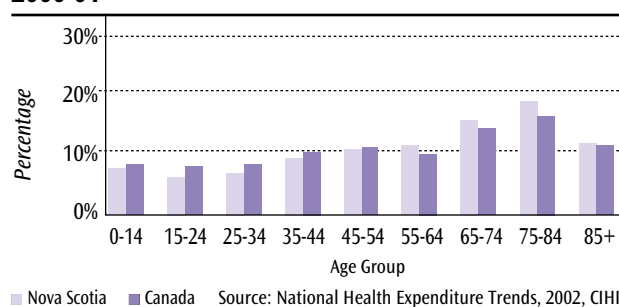
Source: "National Health Expenditure Trends," 2002, CIHI

3.3.3 Financial Impact of Aging Population

Adding an important dimension to the debate about the sustainability of the health care system are these facts: our population is aging, and more money is spent on health care as people age.

Health expenditures for seniors aged 65+ represented 46.9% of the total expenditures in Nova Scotia in 2001, while seniors accounted for just 13.2% of the population (Figure 3.5). Health expenditures for seniors age 65+ were \$10,451 per capita in 2000-01, more than triple the average spending of \$2,938 per Nova Scotian overall.

Figure 3.5: Percentage Distribution of Total Health Expenditure by Age Group, Nova Scotia and Canada, 2000-01



Usage by Canadians aged 65+ varied by type of service, ranging from 86.4% of expenditures on non-hospital institutions like long-term care facilities, to 27.8% for physicians (Table 3.7). In most categories, expenditure on persons aged 65+ has recorded a slow but steady increase over the last two decades.

Table 3.7: Percentage of Expenditure by Category for Persons 65+, Selected Years, Canada, 1980-2001

	Hospitals	Other Institutions	Physicians	Other Professions	Drugs	Home Care	Other Expendit.
1980-81	41.7%	78.0%	18.3%	17.3%	74.0%	75.1%	22.3%
1990-91	51.1%	81.2%	23.2%	29.3%	80.0%	75.8%	26.5%
1995-96	52.8%	84.9%	25.5%	24.2%	71.7%	71.3%	25.2%
2000-01	54.7%	86.4%	27.8%	27.9%	64.5%	73.0%	26.8%

Source: "National Health Expenditure Trends," 2002, CIHI

A notable exception is drug expenditure, which includes prescription and non-prescription drugs as well as personal health supplies. Although overall drug expenditures increased almost 10-fold between 1980 and 2001, from \$450 million to \$4.443 billion, drug expenditures by Canadians over 65 years increased a more modest six fold.

Table 3.8 compares the health expenditure on seniors 65 years and over, by expenditure category in Nova Scotia with the national pattern. In 2000-01, Nova Scotia spent about the same percentage on hospital and home care services as the national average. The Province spent a significantly larger percentage of its budget for physicians and drugs on seniors, and less on “other institutions” and “other health professionals”.

Table 3.8: Percentage Health Expenditures Over Age 65, Nova Scotia and Canada, 2000-01

Expenditure Category	Nova Scotia	Canada
Hospitals	54.2%	54.7%
Other Institutions	80.1%	86.4%
Physicians	32.2%	27.8%
Other Professionals	10.0%	27.9%
Drugs	75.8%	64.5%
Home Care	76.6%	73.0%
Other Expenditures	35.4%	26.8%

Source: “National Health Expenditure Trends,” 2002, CIHI

As noted, the proportion of Nova Scotia’s population 65 and older is expected to increase to 25% of the population in 2026, up from 13.2% in 2001.

The Romanow Commission considered the issue of aging population and played down the consequences of aging on the health care system. Romanow cited reports which indicated that aging alone will increase health spending by only about 1% a year, and pointed out that countries that have already experienced aging populations have been able to manage costs.²⁸ Another mitigating factor to consider is that we are spending less on the health care of individual seniors than we did two decades ago. From 1980-81 to 2000-01, the share of health expenditures for those aged 65 and over increased 22% while seniors’ share of the population went up 33%.²⁹

The Romanow Report expressed optimism that future generations of aging Canadians will continue the trend and be healthier than preceding ones, with fewer chronic and lifestyle-related health problems. Romanow contends that an aging population is not “a catastrophe waiting to happen” but it will have significant implications with respect to:

- higher incidence of elderly related diseases such as Alzheimer’s and dementia;
- an increase in demand for health/personal care services linked to a decrease in one’s independence; and
- increasing numbers of people who will require joint replacements.

Another factor is the timing of this elderly population bulge. It will be nearly ten years before the first large cohort of baby boomers hit 65 years of age, so there is some time to prepare for the impact of the aging population on the health care system.

3.3.4 Federal Health Transfers

There are other issues raised by aging population that are of particular concern to Nova Scotia as a province with a population that is older than the national norm. All else being equal, if the 2026 demographic had existed in 2001, total health costs would have been more than \$1 billion higher.

As Table 3.9 shows, all but two Provinces exceed the national average of 12.5% for population 65 years and over, and four Provinces, Saskatchewan, Manitoba, Nova Scotia and PEI, exceed it significantly. In the wake of federal-provincial agreements in 2002 and 2003, federal funding is becoming a more important part of the overall health funding picture in Nova Scotia with transfers under the Canada Health and Social Transfer (CHST) growing each of the last three years, as Table 3.10 shows. Although the CHST is not earmarked for health alone, increases in recent years have been directed to health initiatives.

Table 3.9: Percentage of Population 65+ Years by Province, 2000-01

Province	Total 65+	% 65+
Saskatchewan	148,148	14.5%
Manitoba	155,083	13.5%
Nova Scotia	124,138	13.2%
PEI	18,207	13.1%
New Brunswick	97,551	12.9%
British Columbia	527,550	12.9%
Quebec	944,474	12.8%
Ontario	1,466,683	12.6%
Newfoundland	62,756	11.6%
Alberta	301,225	10.1%

Source: Health Canada

Table 3.10: CHST Transfers to Nova Scotia as Percentage of Provincial Government Health Spending, 2000-2004

Year	\$ CHST	\$ Health Spending	% CHST to Health
2000-01	.526B	1.747B	30.1%
2001-02	.553B	1.838B	30.1%
2002-03	.610B(f)	1.997B(f)	30.5%
2003-04	.731B(e)	2.111B(e)	34.6%

Source: Budget Documents, NS Dept of Finance, 2002, 2003

28. Commission on the Future of Health Care in Canada, Final Report, 2002, p. 20

29. Health Canada, “Health Expenditures in Canada by Age and Sex, 1980-81 to 2000-01, Highlights

Unfortunately for Nova Scotia and other Provinces with older populations, federal health transfers are provided on a per capita basis and make no provision for the age structure or the health status of the population. Unless the formula is changed to recognize factors like an aging population, even greater pressure will be placed on the Province's capacity to deal with demographic challenges.

3.3.5 Public-Private Split

Another factor to consider is the nature of the services used by the older population and who pays for them. About 70% of health care in Nova Scotia is paid for from public sources (taxes and assessments) and 30% from private sources. As the table shows, the private share has been increasing over time as the public share diminishes (Table 3.11).

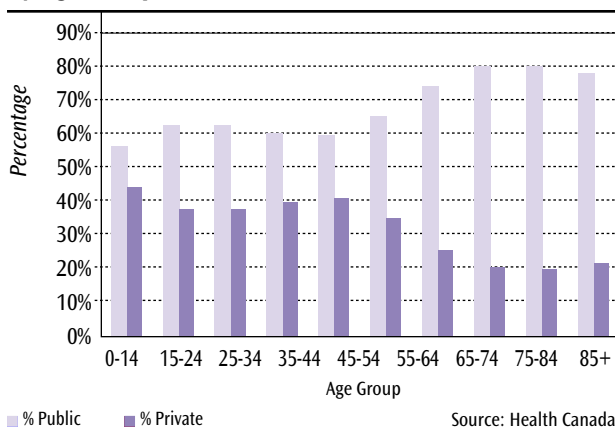
Table 3.11: Health Expenditure by Source of Funds Nova Scotia, Percentage, Selected Years

Year	1975	1980	1990	1995	2000	2002(f)
Public %	78.8	77.5	73.8	68.5	70.5	69.5
Private %	21.2	22.5	26.2	31.5	29.5	30.5

Source: "National Health Expenditure Trends," 2002, CIHI

The split of approximately 70% public and 30% private expenditures does not apply across all age groups. Figure 3.6 shows, as individuals retire and lose the benefits of private insurance, they rely more on the public system. The three age groups which are the highest percentage users of public sector health care are those aged 65+.

Figure 3.6: Health Expenditures by Source of Funds by Age Group, Canada, 2000-01



On average, Canadians 65 years and over obtain 78% of health services from the public sector, 22% from private. As Table 3.12 shows, in common with the overall population, Canadians 65 years and over have been paying for an increasing share of health care services through private insurance plans or out-of-pocket.

Table 3.12: Change in Public and Private Share of Health Expenditure by Age Group, 1980-2001, Canada

Year	Public : Private Aged 65+ Years	Public : Private Population Overall
1980-81	83 : 17	74 : 26
1990-91	82 : 18	73 : 27
1995-96	80 : 20	69 : 31
2000-01	78 : 22	69 : 31

Source: "National Health Expenditure Trends," 2002, CIHI

For Nova Scotians 65 years and over, the public and private imbalance is greater, at 82% public and 18% private.

An aging population will present challenges to Nova Scotia's health care system in the years ahead. However, as the preceding analysis indicates, we have considerable time and fiscal resources to meet those challenges.

To quote Romanow once again:

...aging is not the ominous threat to future sustainability of our system that some would suggest. Aging will challenge and add costs to our health care system, but those costs can be managed, particularly if we begin to prepare and make adjustments to anticipate the impact of an aging population.³⁰

3.3.6 Impact on Health Human Resources

With salaries estimated to account for about 70% of health care costs the financial challenges facing the province will impact the health care workforce in a number of ways.

Recruitment and retention of occupational groups in short supply will continue to be a challenge given the effects of globalization and intense competition for scarce HHR in other provinces and countries. The province will increasingly be tested by the challenge of balancing its fiscal responsibilities with the need to provide competitive wages and other incentives in to attract and retain adequate numbers of health care workers to deliver services.

In addressing compensation levels for health care workers, governments and public sector unions face a formidable challenge. The need to address skill shortages in the labour market, and to recruit and retain knowledge workers, will increasingly put upward pressures on wage costs at a time when the financial sustainability of the health care system is relatively fragile.

30. Commission on the Future of health Care in Canada, Final Report, 2002, p.23

3.4 REGULATION OF HEALTH OCCUPATIONS

3.4.1 Overview of Health Occupation Regulation

Governments regulate many things that people do, particularly if there is potential risk to the public from those activities. Across Canada, more than 30 different health professions are regulated by at least one province or territory, and the list is growing. Regulated health care workers in Nova Scotia must be registered under provincial legislation in order to practice. All provinces have a *self-governing* model of occupational regulation, under which authority is delegated by legislation to a regulatory body (often referred to as a professional college) which governs the professional practice of its members in the public interest.

The main objective of health profession legislation is to protect the public from harm arising from exposure to risk while receiving health care services. Occupational regulation protects the public by establishing:

- Entry-level standards for those entering the profession (the education level, skills, and knowledge to be licensed);
- Standards of practice and a code of ethics to guide professionals in the performance of their duties;
- Continuing education or continuing competence requirements members must follow to maintain their competence throughout their career; and
- Procedures to assess complaints from the public and to discipline members.

A key component of health profession legislation is a practice definition outlining the tasks that licensed members of the profession may perform. Such tasks help to define the occupation's scope of practice, by providing a legal definition of its work. Some provincial statutes also contain provisions regarding the supervision and delegation of tasks to other occupational groups.

There are several kinds of systems used in Canada to regulate health care workers.³¹ Under a *right to title* model, legislation protects an occupation's title, so that only those registered with a regulatory body can use the title authorized by statute. However, under this model there is typically no formal restriction in the tasks that can be performed by other occupational groups. This has also been referred to as permissive or voluntary regulation models.³²

An *exclusive scopes of practice* model not only protects the use of an occupation's title, it restricts certain tasks to those who are licensed to perform them. Members of a profession are granted exclusive rights under the law to provide particular tasks or activities to the public.

Lastly, a *controlled acts* system restricts certain tasks or activities to certain occupations. Rather than granting each profession exclusive control over broadly defined areas of practice, only areas of practice that carry serious risk of harm, if performed incorrectly, are restricted through legislation. All other activities can be legally performed by any occupation.

3.4.2 The Regulation of Health Occupations in Nova Scotia

Legislation establishes the legal framework for the practice of 19 health occupations in Nova Scotia (Table 3.13), accounting for over 19,000 health care workers.

Table 3.13: Regulated Health Occupations in Nova Scotia

Occupation	Legislation	Governing Body
Chiropractors	<i>Chiropractic Act</i>	Board of the NS College of Chiropractors
Dentists	<i>Dental Act</i>	Provincial Dental Board of NS
Dental Hygienists	<i>Dental Act</i>	Provincial Dental Board of NS
Dental Assistants	<i>Dental Act</i>	Provincial Dental Board of NS
Denturists	<i>Denturist Act</i>	Denturists Licensing Board of NS
Dental Technicians	<i>Dental Technicians Act</i>	Examining Board of the NS Dental Technicians Association
Dieticians	<i>Professional Dieticians Act</i>	Board of Directors of the NS Dietetics Association
Licensed Practical Nurses	<i>Licensed Practical Nurses Act</i>	College of Licensed Practical Nurses of Nova Scotia
Medical Laboratory Technologists	<i>Medical Laboratory Technologists Act</i>	College of Medical Laboratory Technologists of Nova Scotia
Medical Radiation Technologists	<i>Medical Radiation Technologists Act</i>	NS Association of Medical Radiation Technologists
Occupational Therapists	<i>Occupational Therapists Act</i>	College of Occupational Therapists of Nova Scotia
Opticians	<i>Dispensing Opticians Act</i>	NS Board of Dispensing Opticians
Optometrists	<i>Optometry Act</i>	Board of Examiners of the NS Association of Optometrists
Physicians	<i>Medical Act</i>	College of Physicians and Surgeons of Nova Scotia
Physiotherapists	<i>Physiotherapists Act</i>	NS College of Physiotherapists
Psychologists	<i>Psychologists Act</i>	NS Board of Examiners in Psychology
Pharmacists	<i>Pharmacy Act</i>	College of Pharmacists of Nova Scotia
Registered Nurses	<i>Registered Nurses Act</i>	College of Registered Nurses of Nova Scotia
Social Workers	<i>Social Workers Act</i>	Board of Examiners of the NS Association of Social Workers

31. Derived from Casey, J.T. 1999. Status Report and analysis of health professional regulations in Canada. A commissioned report prepared for the Health Canada Federal/Provincial/Territorial Advisory Committee on Health Human Resources. Unpublished.

32. World Health Organization. Human Resources for Health Toolkit for Planning, Training and management. "Legislation Practice Requirements."

Other occupations which have requested self-regulation in Nova Scotia include cardiology technologists, dental hygienists,³³ kinesiologists, massage therapists, midwives, osteopaths, paramedics, professional counselors, podiatrists and respiratory therapists.

Self-governing professions in Nova Scotia operate under a combination of exclusive scope of practice and title protection models. Legislation includes definitions of occupations' scopes of practice and protects occupations' titles, so that only those registered with a regulatory body can formally use the title authorized by statute and perform tasks defined in the act.

It should be noted that in recent years Nova Scotia has updated and modernized several statutes to ensure standard, consistent legislative provisions and governance structures. For example, a number of professions moved to a college system of governance (i.e. chiropractors, pharmacists, registered nurses and licensed practical nurses). As well, improved disciplinary processes have recently been introduced.

3.4.3 Issues and Trends in Health Occupation Legislation

Occupational regulation is done to protect the safety of the public. The primary benefit of self-regulation includes potential for decreased risk of harm to the public through quality assurance mechanisms, practice standards, and continuing competence requirements. However, research has revealed a number of negative consequences that have been associated with occupational legislation, including potential for the following³⁴:

- Occupational monopoly;
- Barriers to entry and mobility;
- Inefficient use of human resources;
- Higher service costs;
- Personnel shortages;
- Lack of public accountability;
- Stifling of innovation; and
- Exacerbation of shortages.

Reviews have also revealed that the structures and processes created by the regulatory bodies, as well as the terminology used, can vary from profession to profession, especially with respect to the complaints and discipline processes.³⁵ Furthermore, although public protection remains the cornerstone of occupational regulation, research suggests it

has demonstrated a “weak relationship to outcome quality”.³⁶ The Economic Council of Canada looked at occupational regulation in Canada in detail and concluded:

*...occupational regulation in Canada is not working as well as it could, or should. The evidence that we have gathered suggests that a number of regulatory restrictions are imposing costs in excess of the benefits provided.*³⁷

One concern with overly rigid occupational regulation is that it could hinder the goals of key health care reforms. Service delivery initiatives such as primary health care renewal emphasize more collaborative working relationships and potential changes to the scopes of practice among health professionals. This requires supporting legislative structures that are flexible, adaptable to change and encourage innovation. This will place pressures on the regulatory system to accommodate demands for flexibility, while at the same time ensuring that public safety is protected. As one submission to the Kirby Commission stated:

*... if health care providers are qualified through education and training to perform certain tasks, they should be allowed to perform them.*³⁸

3.4.3.1 Evolving Scopes of Practice - ‘Omnibus’ Legislation and Shared Scopes of Practice Models

There are a number of approaches that have been used to expand the scope of practice of health care workers. Traditionally, scopes of practice have evolved through collaborative practice agreements between employers and regulatory bodies. Furthermore, the creation of policies and guidelines for delegation of tasks are often used as a strategy for ensuring more efficient utilization of health care workers' scopes of practice. For example, the College of Physicians and Surgeons of Nova Scotia and the College of Registered Nurses have guidelines outlining the principles, criteria and conditions for the delegation of restricted medical acts from physicians to nurses.

Ontario, British Columbia and most recently, Alberta, have introduced new approaches to the regulation of health professions to improve flexibility and add greater public choice. These provinces have introduced a single law, or omnibus legislation, which lays out common rules that apply to all health professions, such as registration, continuing competence, professional conduct and discipline.

33. Dental Hygienists and Dental Assistants are presently regulated under the Dental Act, which is governed by the Provincial Dental Board of Nova Scotia.

34. Outlined under Building a Stronger Foundation: A Framework for Planning and Evaluating Community-Based Health Services in Canada. Pong, Raymond W., Saunders, Duncan., Church, John., Wanke, Margaret., Cappon, Paul (1995). Component 1: Health Human Resources in Community-based Health Care: A Review of the Literature. Health Canada.

35. Derived from Reforming Health Care Workforce Regulation, Policy Considerations for the 21st Century, Report of the Taskforce on Health Care Workforce Regulation.

36. Pew Health Professions Commission, 1994. State Strategies for Health Care Workforce Reform. San Francisco, California: Pew Health Professions Commission. P. 10.

37. Economic Council of Canada, 1981. Reforming Regulation (Chapter 10). Ottawa: Canadian Government Publishing Centre. P. 118

38. Interim Report on the State of Health Care System in Canada, M.J.L. Kirby, M. LeBreton

A critical aspect of these reforms has been the move away from exclusive scopes of practice in legislation, towards shared or overlapping scopes of practice. As indicated earlier, *controlled acts* regulation restricts only a limited number of tasks or activities to certain occupations, rather than regulating an entire field of practice. Only those areas of practice that carry serious risk of harm, if performed incorrectly, are controlled in legislation. All other activities can legally be performed by any occupation. The practice areas restricted in legislation are known as ‘controlled acts’ in Ontario, ‘reserved acts’ in British Columbia and restricted activities in Alberta.

Reaction to legislative reforms in these jurisdictions has been mixed. Governments generally claim that omnibus legislation increases the protection of the public, provides greater consumer choice and improves accountability. Furthermore, they contend these models replace exclusive scopes of practice models with the concept of shared scopes of practice. This in turn demonstrates the potential for more flexible and efficient use of HHR in providing care consistent with the objectives of health care reform initiatives, such as primary care renewal.

There is currently some anecdotal evidence to support this type of model. A recent review of Ontario’s model, which has been in operation for nearly a decade, noted the following:

*Not one submission suggested that the system of controlled acts should be discarded or that Ontario should return to the previous system of exclusive scopes of practice. HPRAC concludes that after five years of implementation, the system of controlled acts remains a positive feature of the health professions regulatory system in Ontario.*³⁹

However, it should be noted that no empirical evidence can be found to support the effectiveness of controlled acts models versus the other practice models. The evidence is not clear that this type of legislative framework fundamentally increases the choices available to the public, or whether this type of legislative framework increases or decreases the level of protection afforded to the public.⁴⁰

As well, there may be practical considerations associated with omnibus legislation for this region. Nova Scotia is small compared with the provinces that have introduced omnibus

legislation. A ‘one size fits all’ approach to occupational regulation may not be practical, given the resources available to smaller regulatory bodies. For instance, nearly half of the regulatory bodies in Nova Scotia do not have websites and less than half currently produce annual reports. Some regulatory bodies may not have the institutional capacity and resources required to implement omnibus legislation, which may require the establishment of standardized administrative structures and procedures.

3.4.3.2 Increasing Credentials of Health Professions

Occupational regulation provides a framework for the establishment of educational and other requirements that must be met in order to enter a profession. One consequence of occupational self-regulation is the incremental elevation of educational requirements required for entry-to-practice, commonly referred to as “credential creep.”

A number of occupations, which currently require a diploma for entry to practice, are considering moving to a bachelor degree. These include dental hygienists, medical laboratory and medical radiation technology groups. Occupations that are moving from bachelors to masters degrees include occupational therapists and physiotherapists.

The rationale for increasing credentials is that such changes are required to keep pace with changes in the health care system. These include greater on-the-job responsibilities, evolving scopes of practice, more sophisticated technologies, changing demographics, and demands for teamwork and interpersonal communications.

Although increasing credentials is often justified on the basis of the need for more qualified health care workers, there are negative consequences as well. The main concern is the potential to exacerbate personnel shortages. Increasing credentials requires a longer training period, increases costs for students and pushes salaries upwards, which can have an impact on the supply of certain occupations.⁴¹ This presents particular challenges for occupations considered to be in a shortage situation, such as medical laboratory and medical radiation technology occupational groups.

39. Health Professions Regulatory Advisory Council. *Adjusting the Balance: A Review of the Regulated Health Professions Act*, March 2001, p.10

40. Fooks, C; Duvalko, K; Schiff, J. Appendix A, Literature Review. *Health Human Resource Planning in Canada: Physician and Nursing Workforce Issues*. Prepared for the Commission on the Future of Health Care in Canada. Canadian Policy Research Networks Inc.

41. *Increasing Credentials and Educational Requirements*. OHA Scope of Practice Summit, January 29, 2002. Obtained from presentation by Renate Krakauer.

Some authors have also noted concern that a more highly qualified workforce can worsen the inequitable geographic distribution of workers. A study that examined the practice locations of masters versus certificate trained nurse practitioners found that graduates of the masters degree programs were much less likely to work in under-serviced areas than their certificate program counterparts.⁴² This could have implications for occupations such as occupational therapy and physiotherapy, which already have challenges with distribution: 73% of occupational therapists and 70% of physiotherapists are located in the Halifax Regional Municipality region.

As well, increasing credentials could potentially impact the demand for other occupations. If fewer graduates are available to perform lower task level activities, some of the functions or roles may need to be filled by other occupations. This will likely increase pressures on employers to encourage delegation of tasks to other providers.

3.4.3.3 Removing Barriers to Mobility

A shortage of health care workers in other provinces and countries has created a global demand for HHR. Nova Scotia relies somewhat on recruiting out-of-province health care workers for delivering services. For instance, over one-half of registered nurses entering practice in Nova Scotia from 1999 and 2001 were from other areas; 48% from other parts of Canada, three per cent from overseas and one percent from the U.S.⁴³ Similarly, one-half of Nova Scotia physicians in 2000 were educated in other areas; 25% from other provinces and 25% from other countries.⁴⁴ Recruitment of health care workers requires a highly mobile health workforce. This has placed pressures on governments to ensure that federal and provincial laws do not impose unnecessary barriers to labour mobility.

Mobility within Canada

Regulatory changes introduced over the past decade have made movement within Canada much easier. For example, Chapter 7 of the Agreement on Internal Trade (AIT), signed by the federal, provincial and territorial governments, was introduced as a way to enable workers who are qualified for an occupation in one province to seek employment in other provinces. The AIT requires provincial governments and regulatory bodies to ensure their legislation and regulations do not impose mobility restrictions. Since 1994 occupational

regulatory bodies in Nova Scotia have been working with other provinces to comply with AIT requirements, and all but one has complied.

Some occupations have been particularly challenged to comply with the AIT, due to provincial differences in entry-to-practice requirements. For example, psychologists have different education and training requirements from province to province. At the national level, the Canadian Psychological Association (CPA) currently supports doctoral level training, and will accredit only doctoral programs. However, master-level training is a sufficient requirement in Nova Scotia, New Brunswick, Alberta and Saskatchewan. Prince Edward Island also has entry to practice at the masters level, but psychologists are not allowed to work independently. In Ontario, a doctorate is required, although one can practice as a psychological associate with training at the masters level. Provinces such as Quebec, Manitoba and British Columbia require doctoral level training.

The introduction of regulatory changes to minimize restrictions on mobility highlights a broader trend. Health care workforce regulation, along with education and credentialing, is moving in the direction of national standards. The most dramatic impact of this trend will be on the scopes of practice of health care workers, entry-to-practice requirements, and entry-level competencies of regulated health care workers.

Mobility from Abroad

In addition to mobility within Canada, health care professionals from other countries migrate to Nova Scotia every year. Health care professionals who migrate to Nova Scotia undergo an assessment process to have their credentials recognized. In some cases this assessment process is relatively straightforward, whereas in other cases, it is time consuming and complex. Physician representatives noted particular challenges in the assessment of credentials of foreign-trained physicians, commonly referred to as International Medical Graduates (IMGs). Although the Royal College and the Medical Council of Canada have developed examinations to assist in this process, the assessment process and the standards for licensing vary by province.

IMG physicians seeking licensure in Nova Scotia, who have no North American experience or accredited residency training, must undergo a formal clinical assessment process from the

42. Fowkes, Virginia Kliner., 1994. Effectiveness of educational strategies preparing physician assistants, nurse practitioners, and certified nurse-midwives for underserved areas. Public Health Report. 109: 673-682.

43. College of Registered Nurses of Nova Scotia 2001 Annual Report, Statistical Profile of RNANS Members, p. 13. From 1999 to 2001 416 of 866 new registrants were from Nova Scotia.

44. Department of Health Physician database

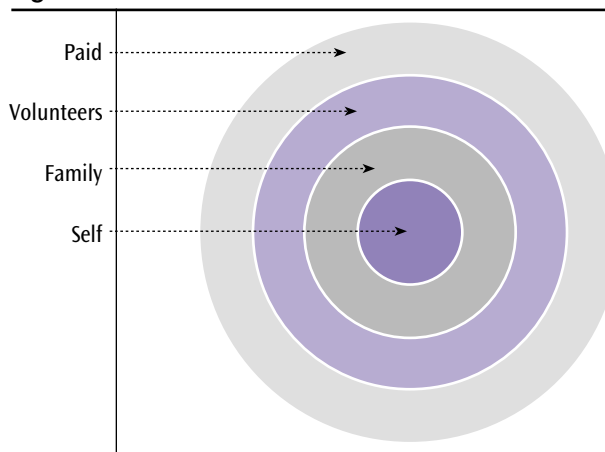
4.0. HEALTH HUMAN RESOURCES IN NOVA SCOTIA

4.1 HEALTH PROVIDERS

Painting a picture of our health human resources (HHR) is a challenging task, since those resources are many and varied. Human resources for health care are not just about doctors, nurses and other paid health workers, nor is their care limited to providing treatment in hospitals and clinics. Our health care system is a mix of non-profit and for-profit, paid and volunteer, self-employed and salaried occupations, unionized and non-unionized employees, and government and privately financed mechanisms.

The term 'human resources for health' encompasses a broad spectrum of all those who contribute to the objectives of the health system, including individuals, families, and volunteers (Figure 4.1). The community, as a whole, is involved as health care providers, as the range of health care services is becoming increasingly broad.

Figure 4.1: Human Resources for Health



To start with, most Nova Scotians, most of the time, are their own health care providers. They work to maintain lifestyles that help them to stay healthy and prevent disease. As Health Canada puts it:

*As individuals, we can all contribute by taking responsibility for our own health and well-being; actively seeking out the information we need to make informed health decisions; building supportive communities; and participating in community activities that have an impact on health.*⁴⁶

Many Nova Scotians volunteer, tending to the health care needs of their family or neighbors in their homes and communities. As volunteers, working either informally or as part of an organization, they represent an important human resource cohort, nearly 60% of the health work done in Canada.⁴⁷

Nova Scotia College of Physicians and Surgeons. IMG physicians seeking licensure as family physicians undergo an assessment, currently done at the University of Manitoba by the Clinicians' Assessment and Professional Enhancement (CAPE). The evaluation of IMG specialists seeking licensure as specialists is more complex, and is currently done on a case-by-case basis. It is considered to be a time-consuming and costly process for both the CPSNS and the candidate.⁴⁵

3.4.4 Continuing Competence

One of the ways regulatory bodies ensure quality practice is by prescribing continuing competence requirements. The conventional method used for continuing competence in Nova Scotia is through mandatory continuing education. Legislation outlines continuing education requirements that must be fulfilled in order for individuals to renew their registration (Table 3.14). However, continuing education requirements vary significantly between regulatory bodies.

Table 3.14: Selected Health Occupations' Approach to Demonstrating Continuing Competence in NS

Health Occupation	Continuous Competence Approach	Requirements
Chiropractors	Continuing Education	24 credit hours every 2 years
Dentists	Continuing Education	90 credit hours every 3 years
Dental Hygienists	Continuing Education	45 credit hours every 3 years
Pharmacists	Self-Assessment	
Occupational Therapists	Minimum practice hours	1200 'currency hours' in the 5-year period prior to the renewal date
Registered Nurses	Reflective practice (Self-assessment tool "Building Your Profile")	Annual completion of self-assessment tool will be mandatory starting in 2003, for the 2004 licensing year
Optometry	Continuing Education	30 hours every 3 years

While the preferred approach to demonstrating continuing competence is via continuing education, new approaches are being developed. These include: reflective learning, self-assessment tools, on-site practice assessment and peer review. In Nova Scotia, health occupations such as nursing and pharmacy recently introduced self-assessment tools to enable self-managed competency assessment.

45. Key informant interview

46. "Health is Everybody's Business," www.hc-sc.gc.ca/hppb/phdd/collab/index.html
47. Jeff Carr, "Health Human Resources: Role of the Voluntary Sector," Health Canada, 2001

The importance of linking unpaid caregivers into the planning framework for HHR cannot be understated. Reports from GPI Atlantic have shown that Nova Scotia benefits from 140 million hours of volunteer work each year, estimated at over \$2 billion in economic value to the province.⁴⁸ Most noteworthy, Nova Scotia contributes 43% more in volunteer work than the Canadian average.

Although Nova Scotia's track record of volunteerism has been admirable there are signs that the number of volunteers may be in decline. A report released by GPI Atlantic showed a decrease in volunteer services of 7.2 percent from a decade ago (compared to Canadian average of 4.7% decrease). GPI Atlantic suggested one cause may be that the time stresses facing married women, the largest source of formal and informal volunteers, has been increasing. According to GPI, Nova Scotia lost 30,000 volunteers, or 10.7%, between 1997 and 2000.⁴⁹ Although it is not definitive that this attrition rate applies to health care volunteers, it is clear that any consideration of HHR must take volunteer resources into account.

The role of the unpaid worker is, and will increasingly become, more important as the focus of health care increasingly shifts away from hospitals and other institutions, and moves more towards care in the community and in ones home. The changing setting for health care is significant, both socially and culturally, as it increases ones reliance more on family/self/home over institutionally-based delivery of health care. This presents challenges given increasing pressures facing the family caregiver. As the Canadian Home Care Human Resource Study pointed out:

This significant shift in responsibility to the family caregiver has occurred at a time when Canadian family life itself has undergone major transformations. Falling birth rates, increased labour force participation by women, increased divorce rates, more single parent families, more geographically dispersed families all strain the family's capacity to cope with increased responsibility for home care.⁵⁰

4.2 A CHANGING HEALTH INDUSTRY

The nature of the health care industry is changing and expanding. The traditional nurse, doctor and dentist are being joined by a myriad of other health care providers.

The publicly-financed part of the health care system is undergoing constant change, thus posing a challenge for human resource planning. It is even more difficult to measure

HHR in the privately-funded sector. Some of the private expenditure Nova Scotians pay each year for health care goes toward long-established services like dentistry, or shared cost programs, like those for prescription drugs, home care or ambulance services.

In addition, increasing numbers of Nova Scotians are availing themselves of services that are complementary to, or alternatives for, conventional medical treatment. Examples of complementary and alternative medicine include such things as massage therapy, homeopathy, herbal remedies, reflexology and traditional Aboriginal or Chinese medicine. Some of these providers of complementary and alternative medicine are organized into self-regulating associations. Most however, are not, thereby complicating the task of assembling a complete picture of the health workforce.

4.3 CHARACTERISTICS OF THE NOVA SCOTIA HEALTH WORK FORCE

According to Statistics Canada, Nova Scotia's health care workforce totaled about 52,900 in 2002. This represents approximately 12% of Nova Scotia's total employed work force of 428,400 people. In other words, more than one in every ten people in Nova Scotia's labour force worked in the health and social services industry. Viewed from the perspective of employees in the public sector, the number increases to about one out of every three people employed.

The health and social services industry represented the province's second largest industry. Only the retail trade industry employed more Nova Scotians (Figure 4.2).

Figure 4.2: Top Five Industries by Employment in Nova Scotia, 2002

Retail trade	66,800
Health and social services	52,900
Educational Services	34,900
Accommodation, Food and Recreational Services	34,100
Construction	30,100

Source: Statistics Canada Labour Force Historical Review, 2002, CD-ROM No. 71F0004-XCB

To obtain detailed information on the health workforce in Nova Scotia, it was necessary to look beyond Statistics Canada's Labour Force Survey and National Occupational Classification (NOC) information. This is because these sources include employment characteristics in the broader social services industry level, rather than for specific health occupations. Furthermore, NOC codes have traditionally been based upon the education and training requirements for occupational groups, so the same NOC code historically may

48. GPI Atlantic. The Economic Value of Civic and Voluntary Work in Nova Scotia, 2001

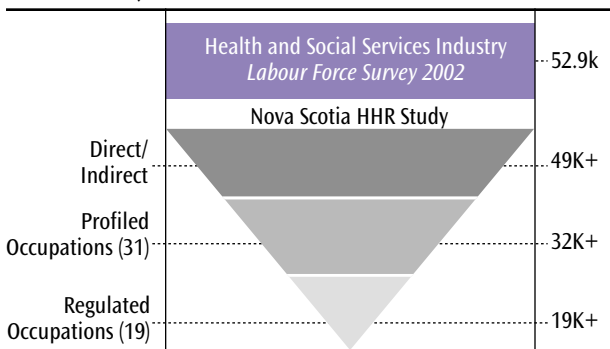
49. GPI Atlantic. The Economic Value of Civic & Voluntary Work in Atlantic Canada: 2003 Update.

50. Canadian Home Care Resource Study

contain multiple occupations grouped together. There was also insufficient detail available on health occupations' practice locations by employment setting (e. g. nursing homes versus hospitals) and geographic distribution (e.g. by health district).

More detailed information on the health workforce in Nova Scotia was supplied by the District Health Authorities (DHAs), the Department of Health (DOH), the Department of Community Services (DCS) and other in-field data sources. This information showed health workforce employment in 2001 at 49,808 people (Figure 4.3). About four out of five (80%) health care workers were employed in patient/direct care. The remaining 20% were involved in indirect patient care, such as housekeeping, administration, maintenance, etc..

Figure 4.3: Health Care Workforce in Nova Scotia, 2002



The 49,808 workers represented 38,335 full time equivalents (FTEs). This means about 1.3 people are required to do the work of one FTE worker. This factor arises because not every healthcare worker is employed on a full time basis, and many health workers provide clinical, administrative, teaching and/or research services as part of their job.

Table 4.1: Health Human Resources Matrix

	Acute Care Hospitals	Mental Health	Public Health	Addiction Services	CONTINUING CARE				Community/Private/Other	Total
					Nursing Homes	Home Care/Home Support	RCFs	CBOs		
FTE	15,161	1,191	233	276	6,438	2,604	490	2,907	9,035	38,335
People	19,177	1,375	255	320	9,657	3,201	588	3,489	11,746	49,808
No./People per FTE	1.3	1.2	1.1	1.2	1.5	1.2	1.2	1.2	1.3	1.3

To determine the practice location of health care workers in Nova Scotia the workforce was viewed from the following components: acute care (hospitals), continuing care, addiction services, public health, mental health, and community/private/other. Continuing care, in turn, was sub-divided into the four areas of: long term care nursing homes (LTC/nursing homes), home care/home support (HC/HS), residential care facilities (RCFs) and community based options (CBOs).

Figure 4.4 shows the number of health care workers employed in each major employment setting in 2001. The largest proportion of workers (38%) was in acute care settings (hospitals), followed by continuing care settings (34%). Overall, over 70 per cent of the workforce worked in either acute care or continuing care settings.

Figure 4.4: The People Pie

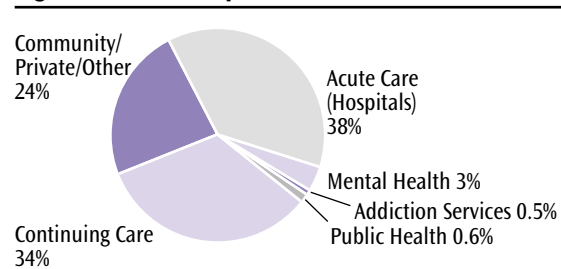


Table 4.1 shows the breakdown of the number of health care workers and FTE numbers for each employment setting. Employment settings with higher than average people to FTE ratios, such as LTC with a ratio of 1.5, reflect a higher proportion of part time and casual workers. In terms of planning and utilization of human resources, one would need more people for each FTE position in a setting where there are fewer people employed on a full time (versus casual or part time) basis.

Figures 4.5 and 4.6 show the proportion of direct to indirect FTE positions in acute care (hospitals), mental health, public health and addiction services and in continuing care. The estimated proportion of direct care providers ranged from a low of 63% of workers in RCFs and 68% of workers in LTC facilities (nursing homes) to a high of 94% in public health and 92% in mental health.

Figure 4.5: Direct vs. Indirect Workers, NS

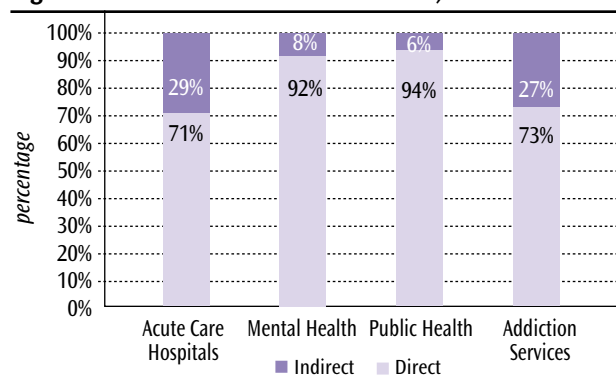
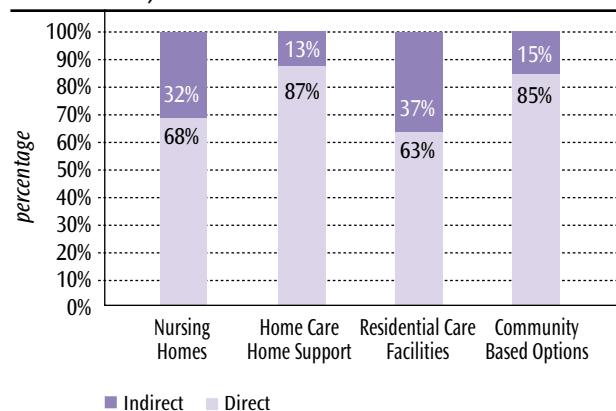


Figure 4.6: Direct vs. Indirect Workers, Continuing Care Overall, NS



Key workforce characteristics at the occupational level (versus employment setting level) were obtained by collecting information from the health occupations' regulatory bodies and professional associations. This process identified a workforce of 33,900 people engaged in 31 health occupations of which occupational summaries, profiles and issues for each occupation profiled were created. The choice of which health occupations to profile was based largely on availability and accessibility of data and relative size of the occupation.

Table 4.2 illustrates the number of workers comprising the occupations profiled for this study. There were 10 occupations that comprised about 28,000 people, or more than half of the total health workforce. These 10 occupations accounted for more than 80% of the profiled groups of health care workers. The two nursing occupations, registered nurses and licensed practical nurses, accounted for approximately 12,000 health workers representing over one third of the occupations profiled.

Table 4.2: Occupations Profiled, NS, 2000-2003

Occupation	Year	Active Supply	% of Supply all Occupations	Cum.
Registered Nurses	2002	8741	25.83%	25.83%
PCW/CCA	2001	4092	12.09%	37.92%
Community Residential Workers	2002	3362	9.93%	47.85%
Licensed Practical Nurses	2002	3063	9.05%	56.90%
Home Support Worker	2002	2020	5.97%	62.87%
Physicians	2001	1989	5.88%	68.75%
Social Workers	2001	1455	4.30%	73.05%
Health Service Managers	2002	1211	3.58%	76.63%
Medical Laboratory Technologists	2001	1119	3.31%	79.93%
Pharmacists	2001	949	2.80%	82.74%
Paramedics	2001	838	2.48%	85.21%
Dental Assistants	2001	624	1.84%	87.06%
Medical Radiation Technologists	2001	483	1.43%	88.48%
Dentists	2001	464	1.37%	89.85%
Physiotherapists	2001	449	1.33%	91.18%
Dental Hygienists	2001	418	1.24%	92.42%
Dietitians and Nutritionists	2001	402	1.19%	93.60%
Psychologists	2001	371	1.10%	94.70%
Massage Therapists	2001	286	0.85%	95.54%
Occupational Therapists	2001	240	0.69%	96.24%
Health Records Admin/Tech	2002	206	0.61%	96.84%
Respiratory Therapists	2001	186	0.55%	97.39%
Opticians	2000	173	0.51%	97.91%
Recreational Therapists	2001	171	0.51%	98.41%
Speech Language Pathologists	2001	156	0.46%	98.87%
Sonographers	2003	99	0.29%	99.16%
Optometrists	2001	76	0.22%	99.39%
Chiropractors	2002	74	0.22%	99.61%
Denturists	2000	55	0.16%	99.77%
Audiologists	2001	50	0.15%	99.92%
Dental Technicians	2001	28	0.08%	100.00%
Total		33,850	100.00%	

4.3.1 Sex Distribution

Nova Scotia's health workforce is about 84% female and 16% male. The proportion of females in the health industry is substantially higher than the proportion of females in the labour force overall, which was 48% female in 2002.⁵¹

Only six health occupations profiled came close to the female-male ratio of the labour workforce as a whole, and nine occupations were virtually all (over 90%) female. There were six occupations that were mostly male (Table 4.3).

51. Statistics Canada Labour Force Survey, 2002

Table 4.3: Female/Male Proportions by Health Occupation

High Female Percentage (90% or more)	Female	
Dental Assistants	99.7%	
Speech Language Pathologists	99%	
Dietitians	99%	
Dental Hygienists	98%	
Home Support Workers and Personal Care Workers	97%	
Registered Nurses	97%	
Licensed Practical Nurses	95%	
Occupational Therapists	92%	
Predominately Female (70% to 90%)	Female	
Medical Radiation Technologists	85%	
Massage Therapists	85%	
Physiotherapists	83%	
Health Sector Social Workers	79%	
Medical Laboratory Technicians	76%	
Community Residential Workers	75%	
Recreational Therapists	75%	
Respiratory Therapists	71%	
More Balanced Distribution	Female	Male
Pharmacists	65%	35%
Audiologists	62%	38%
Health Managers	60%	40%
Psychologists	60%	40%
Opticians	47%	53%
Chiropractors	42%	58%
High Percentage Male	Male	
Dental Technicians	81%	
Paramedics	79%	
Dentists	75%	
Optometrists	71%	
Denturists	69%	
Physicians	69%	

Even some traditional male dominated health professions are increasingly female. Although physician supply overall was 69% male and 31% female, the male-female ratio for physicians 40 years and under was 56% male to 44% female. And this trend will become more pronounced, as in 2001-02, more than half (53%) of the medical students at Dalhousie were female.

A similar pattern is developing in dentistry, where females comprised 57% of enrolments in Dalhousie's program (as compared to existing dentist workforce supply of 31% female).

4.3.2 Age Distribution

Age information was available for 82% of health workers profiled. The average age of this workforce was 41.3 years of age. About one in four (23%) of these workers were 50 years and older, and 14% were under 30 years of age.

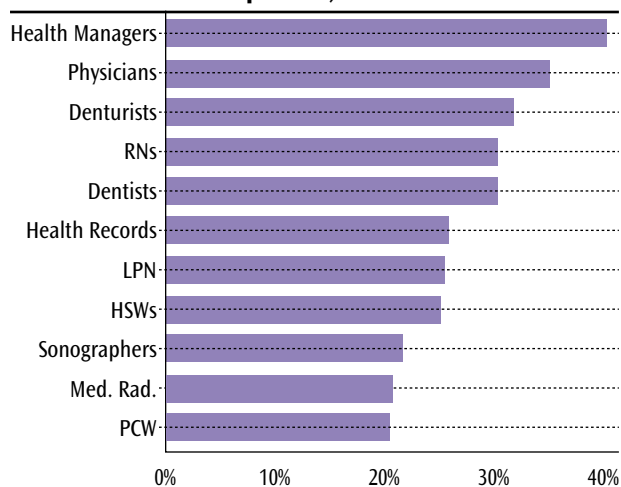
There was significant age variation between occupational groups (Table 4.4). There were 12 occupational groups with an average age of 40 years or more. Most of these occupations had at least one in five who were over the age of 50 years, and therefore would be approaching retirement age in the next decade (Figure 4.7).

Table 4.4: Average Age in Years, by Occupation

Occupation	Average Age
Health Managers*	47.0
Physicians	46.8
Denturists	45.0
Health Records/Management	44.4
Medical Laboratory Technologists	44.0
Registered Nurses	43.9
Dentists	43.8
Licensed Practical Nurses	43.2
Sonographers	41.6
Psychologists*	40.6
Dietitians	40.6
Home Support Workers/CCAs	40.0
Medical Radiation Technologists	39.9
Pharmacists	39.9
Personal Care Workers/CCAs	39.2
Physiotherapists	38.5
Respiratory Therapists	36.9
Dental Hygienists	36.7
Dental Assistants	35.7
Occupational Therapists	35.5
Paramedics	34.0

* acute care

Figure 4.7: Percentage 50 Years of Age and Older, Selected Health Occupations, NS



Although no one occupation group had an average age higher than 50 years, several sub-groups did, including: paediatric dentists (59.5 years); general surgeons (52.4 years); oral pathologists (51.5 years) and oral surgeons (50.4 years).

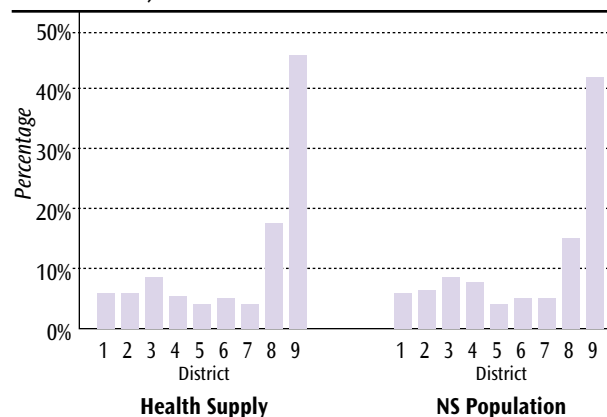
As well, a number of occupations had high concentrations of 45 to 49 year olds, a further indication of the aging workforce demographics in play. Occupations with high concentration of 45 to 49 years of age included registered nurses (19%), medical laboratory technologists (20%), dietitians (17%) and licensed practical nurses (17%).

As well, there were a number of occupations with high proportions of young workers. Paramedics were the youngest occupation, with an average age of 34 years. Other occupations with young average ages included occupational therapists (35.5 years), dental assistants (35.7 years) and dental hygienists (36.7 years).

4.3.3 Geographic Distribution

The distribution of the health workforce profiled in Nova Scotia, overall, closely resembled the distribution of the provincial population (Figure 4.8). A slightly higher percentage of health care workers were located in the Capital district (46%) as compared to the proportion of Nova Scotians residing in this area (42%).

Figure 4.8: Health Workforce Geographic Distribution, NS



For occupations considered mostly urban, or those with greater than 60% located in the Capital district, this distribution was expected, given the large number of health care facilities that serve the broader provincial, and in some cases Maritime and Atlantic population (Table 4.5).

Table 4.5: Health Occupations in Urban vs. Non-Urban Setting, NS

>60% in Capital District (Urban)	Percentage
Occupational Therapists	73%
Physiotherapists	70%
Respiratory Therapists	71%
Specialist Physicians	66%
Opticians	64%
Massage Therapists	63%
Audiologists	60%
<40% in Capital District (Non-Urban)	Percentage
Paramedics	26%
Licensed Practical Nurses	36%
Personal Care Workers	36%
Community Residential Workers	37%
Home Support Workers	37%
Recreation Therapists	38%
Optometrists	40%

4.3.4 Occupational Growth in Nova Scotia

4.3.4.1 An Historical Perspective

For the 16 occupations for which comparative trend data was available, between 1991 and 2000, five occupations in Nova Scotia experienced average annual growth of 5 percent or more (Table 4.6). Social workers (12.8%) and chiropractors (11.7%) experienced the highest average annual growth during this time frame. It is noteworthy that in most cases, these 'high growth' occupations in Nova Scotia approximated the trend for Canada as a whole. However, the growth of chiropractors and social workers was considerably higher in Nova Scotia than in Canada. Furthermore, although there was high growth of dietitians provincially, it was even higher in Canada.

Table 4.6: Selected Health Occupations in NS and Canada, Average Annual Growth, 1991-2000

High Growth	Nova Scotia	Canada
Social Workers	12.8%	3.9%
Chiropractors	11.7%	4.7%
Psychologists	6.6%	3.9%
Dietitians	6.6%	8.4%
Occupational Therapists	5.0%	5.1%
Medium/Low Growth	Nova Scotia	Canada
Pharmacists	3.4%	2.3%
Respiratory Therapists	3.3%	5.4%
Physiotherapists	3.2%	2.9%
Dental Hygienists	3.1%	5.0%
Optometrists	1.1%	2.9%
Physicians (Specialists)	2.0%	1.5%
Declines	Nova Scotia	Canada
Medical Laboratory Technologists	-2.7%	-1.6%
Dentists	-0.8%	1.3%
Medical Radiation Technologists	-0.7%	0.3%
Registered Nurses	-0.7%	-0.2%
Licensed Practical Nurses	-0.3%	-1.8%
Family Physicians (FP/GP)	-0.6%	0.2%

Source: Annual Growth Rates derived from Supply Trends in CIHI, Health Personnel in Canada, 1991-2000

Six occupations in Nova Scotia experienced an average growth in supply between 1% and 3.4% annually. These medium/low (0-5% per annum) growth occupations in Nova Scotia grew at rates comparable to the rest of Canada. However, respiratory therapists, physician specialists, dental hygienists, optometrists and respiratory therapists, which experienced higher growth rates nationally in Nova Scotia.

From 1991 to 2000 a number of occupations experienced growth declines in the supply of workers in Nova Scotia. The largest decline was experienced by medical laboratory technologists (2.7% average annual decline). For the most part, these occupations also experienced declines in Canada as a whole, with the exception of dentists, family physicians, medical radiation technologists which experienced slight positive growth in Canada.

4.3.4.2 Most Recent Supply Changes

Whereas Table 4.6 showed a picture of long term growth of selected health occupations in Nova Scotia, recent changes in supply are outlined under Table 4.7.

Table 4.7: Recent Changes in Selected Health Occupations, NS, 1998-2001*

Occupation	% Change
Medical Radiation Technologists	-7%
Registered Nurses (2002)	0%
Medical Laboratory Technologists	0%
Dental Hygienists	3%
Licensed Practical Nurses (2002)	4%
Pharmacists	5%
Dentists	6%
Physiotherapists	6%
Physicians	9%
Optometrists	10%
Psychologists	12%
Dietitians & Nutritionists	13%
Occupational Therapists	21%
Social Workers	29%
Respiratory Therapists	37%
Chiropractors (2002)	68%

* Supply figures based on CIHI definitions in Health Personnel in Canada, 1991-2000

In examining more recent changes in supply, the following was noteworthy.

- Licensed practical nurses and dentists experienced growth in recent years (4% and 6% respectively), reversing the average annual declines experienced from 1991-2000
- The supply of medical laboratory technologists and registered nurses has been flat in recent years, slowing the ten year declines in supply experienced from 1991-2000

- Although the growth in physicians was relatively flat throughout the 1990s (0.6% average annual growth), there was an increase of 9% from 1998-2001 (primarily related to physician specialists)
- Occupations in medical radiation technology have continued to decline in recent years (-7% change), consistent with their ten-year average annual decline of -0.7% per year

Recent supply changes for the remaining occupations have been consistent with their longer term occupation growth trends.

4.3.5 Health Workers per Capita – Where Nova Scotia Stands

One way of comparing Nova Scotia’s supply of health care workers is to compare the number of health care workers per capita with the overall average for Canada. Information comparing the supply of health care workers per capita in Nova Scotia to Canadian figures was available for most of the regulated health occupations (CIHI).

It should be noted that per capita figures represent a measure of the number of health workers as a proportion of the provincial population. These numbers do not take into account differences in the health status of Nova Scotians and the different mix of services delivered by various health care workers. These factors can impact differences in the number of health care workers per capita across provinces.

Information from the Canadian Institute for Health Information (CIHI) indicated that in 2000, Nova Scotia was above the national average on a per capita basis for 9 health occupations (Table 4.8) and below the national average in eight (Table 4.9). The occupations in which Nova Scotia is under-represented make up a much smaller proportion of the health workforce. It was not possible to make comparisons with national data for the unregulated occupational groups, such as community residential workers, personal care workers, home support workers or paramedics.

Table 4.8: Occupations in which Nova Scotia exceeded National Per-Capita Average, 2000

Occupation	NS/10,000 population	Canada/10,000 population	NS % of Canada
Social Worker	14.16	5.79	244.6%
Dietitian	3.97	2.22	178.8%
Licensed Practical Nurses	34.66	23.62	146.7%
Medical Laboratory Technologists*	7.93	5.74	138.2%
Pharmacist	9.98	7.74	128.9%
Registered Nurse (2001)	93.2	74.9	124.4%
Radiation Technology	5.34	4.7	113.6%
Physician (Specialist)	10	9.3	107.5%
Physician (FP/GP)	10.1	9.4	107.4%

Table 4.9: Occupations in which Nova Scotia Workforce was below National Per-Capita Average, 2000

Occupation	NS/10,000 population	Canada/10,000 population	NS % of Canada
Physiotherapist	4.47	4.65	96.1%
Respiratory Therapist	1.9	2.01	94.5%
Psychologist	3.92	4.28	91.6%
Dental Hygienist	4.37	4.82	90.7%
Dentist	4.76	5.6	85.0%
Occupational Therapists	2.58	3.07	84.0%
Optometrist	0.74	1.11	66.6%
Chiropractor	0.66	1.82	36.3%

4.3.6 Education Levels

Information on the highest level of completed education was available for close to three-quarters (74%) of profiled health occupations. More than half (56%) possess certificate or diploma level training (Figure 4.9). Workers with a bachelor's degree accounted for 21%, master's degree accounted for 5%, doctoral level training 13%, and the remaining 5% did not complete post-secondary training. Table 4.10 shows the education levels of various health occupations.

Figure 4.9: Level of Education of Selected Health Occupations in Nova Scotia

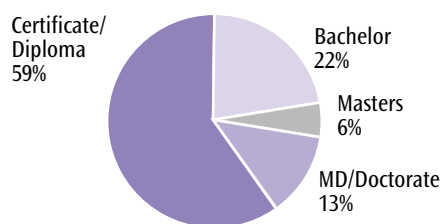


Table 4.10: Highest Level of Completed Education, Health Care Workers, NS

Mostly Certificate or Diploma level training
Dental Assistants
Dental Hygienists
Dental Technicians
Denturists
Licensed Practical Nurses
Medical Laboratory Technologists
Medical Radiation Technologists
Opticians
Registered Nurses (71% of RNs)
Mostly Bachelor level training
Dietitians (75%)
Pharmacists (92%)
Occupational Therapists (91%)
Mostly Masters level training
Audiologists and Speech Language Pathologists
Dietitians (22%)
Registered Nurses (2%)
Pharmacists (1%)
Mostly Doctorate level training
Chiropractors
Dentists
Optometrists
Physicians
Psychology (42%)

It is anticipated that fewer health workers will be certificate and diploma level trained in the future. For instance, although most RNs possess diplomas, Nova Scotia now requires a Bachelor of Science in Nursing (BScN) degree as a minimum requirement for new registered nurses entering into practice. Therefore, the proportion of RNs with diplomas will decrease gradually as more and more bachelor educated RN graduates enter the workforce. Furthermore, several other occupations are considering moving from a diploma to degree level training requirement for entry to practice, including the medical laboratory and medical radiation technology occupations and dental hygienists.

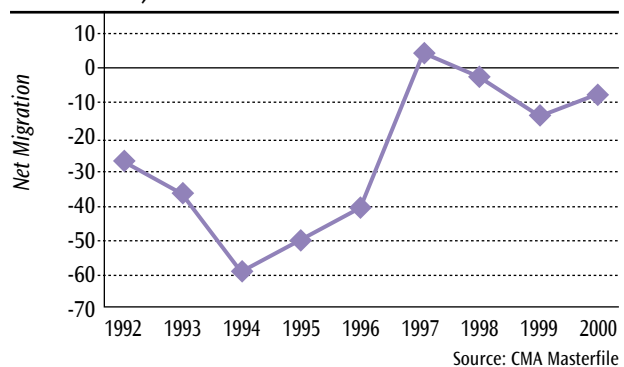
It is noteworthy that social workers in the health field in Nova Scotia possess higher education credentials than the overall average for social workers in the province. A 1999 Nova Scotia Association of Social Workers survey indicated 34% of social workers had masters degrees, compared with 69% of social workers employed in health.

4.3.7 Mobility

Each year, Nova Scotia gains and loses health care workers because of immigration and migration. For most health professions in Nova Scotia, there is little information available on the flow of workers in and out of the province. The following outlines the information that is currently available, which is limited to physicians and registered nurses.

From 1992 to 2000, there has been a net emigration (loss) of approximately 221 physicians from Nova Scotia.⁵² Three times more physicians moved abroad (323) than returned from abroad (102) during this timeframe. However, the net number of physicians leaving Nova Scotia has declined since the mid '90s (Figure 4.10). From 1997 onward, the number of physicians leaving the province represented less than 1% of the physician supply for that year.

Figure 4.10: Net Migration of Physicians to/from Nova Scotia, 1992-2000



In 2000, the net movement of Nova Scotia physicians moving abroad and within Canada represented less than one half per cent (0.4%) of Nova Scotia's total physician supply.

According to the College of Registered Nurse of Nova Scotia (CRNNS), Nova Scotia currently obtains more than half of its new registrants, each year, from outside of the province. Table 4.11 shows 53% of registered nurses who entered practice from 1999 to 2002 were from outside of Nova Scotia.

⁵². Includes the sum of net international and inter-provincial migration (source: CMA Masterfile).

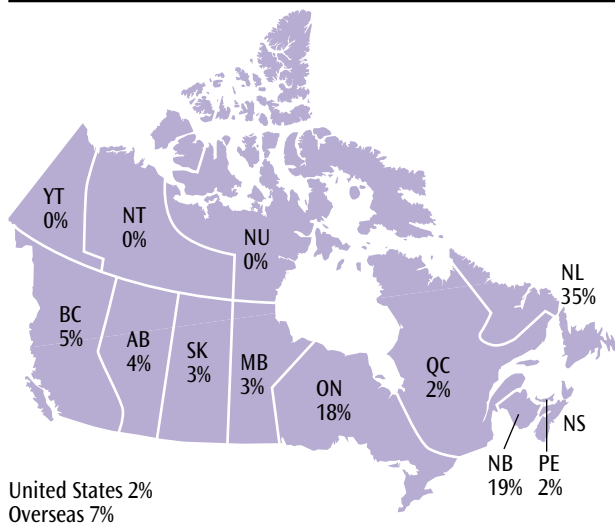
Table 4.11: Origin of Registered Nurses, Initial Registrants, 1999-2002

Origin	Year				Total	Percentage
	1999	2000	2001	2002		
Nova Scotia	137	138	141	133	549	47%
Out of Province	162	127	161	157	607	53%
Total New Registrants	299	265	302	290	1,156	100%
Percentage from NS	46%	52%	47%	46%	47%	

Sources: CRNNS 2001 and 2002 Annual Reports; Registration Statistics

Where do these registered nurses come from? Figure 4.11 shows that most 'come from away' registered nurses who recently entered practice originated from other provinces in Canada (91%) or from overseas (7%). Only 2% originated from the United States. Among those originating from other provinces in Canada, most came from Newfoundland (35%), New Brunswick (19%) and Ontario (18%).

Figure 4.11: Origin of Out of Province Registered Nurses, Initial Registrants, 2002



It is more difficult to get a clear picture of how many registered nurses leave Nova Scotia to work each year. The CRNNS is currently not able to determine how many registered nurses migrate to work in other regions each year from Nova Scotia.

4.4 WORKFORCE CHARACTERISTICS – SNAPSHOT BY EMPLOYMENT SETTING

4.4.1 Acute Care (hospitals)

Information sourced for acute care was comprised of 44 hospitals across the nine DHAs and the IWK in Nova Scotia. There were approximately 19,000 people employed in acute care (hospitals) in Nova Scotia in 2000-01, with 70% in direct patient care related positions and 30% employed in a non-clinical or indirect patient care function (e.g. maintenance, environmental, etc). Data collected from the DHAs and the DOH provided the following demographic information related to direct care providers.

Major Occupations and Geographic Distribution

The majority (80%) of direct care health providers employed in hospitals worked in one of the six occupations noted in Figure 4.12. Registered nurses comprised 42%, licensed practical nurses represented 10%, medical laboratory techs 9%, physicians 8%, paramedics 6% and nursing assistants/orderlies 5%. The remaining 20% were employed in other direct care occupations working in acute care hospital settings. Close to one-half (51%) were located in either DHA 9 or the IWK (Table 4.12).

Figure 4.12: Major Occupations, Acute Care, 2000-01

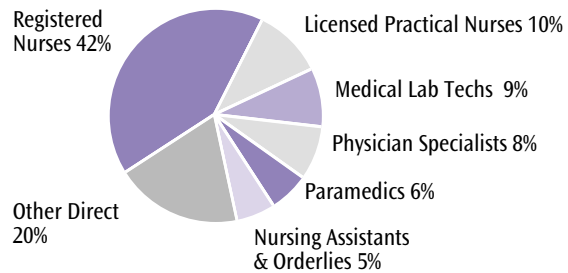


Table 4.12: Geographic Distribution, Acute Care Workers in Direct Care, 2000-01

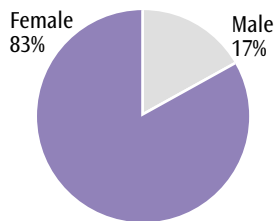
DHA	Geographic Distribution
1	4.5%
2	5.2%
3*	5.9%
4	5.0%
5	3.1%
6	4.3%
7	4.0%
8	17.3%
9	38.8%
IWK	11.8%

* DHA 3 was derived based on MIS proportions

Sex

The majority (83%) of individuals working in acute care (hospitals) in 2001 were female (Figure 4.13).

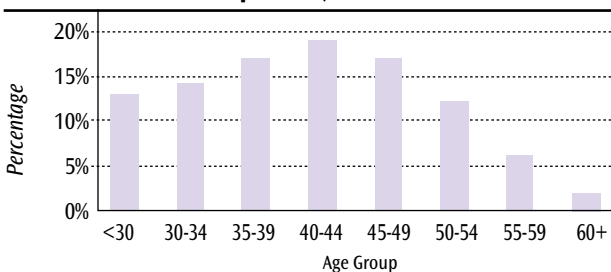
Figure 4.13: Sex Distribution, Acute Care



Age

Figure 4.14 shows the age distribution of acute care (hospital) workers with the average age 41.3 years. Of these, 20% were 50 years of age and older.

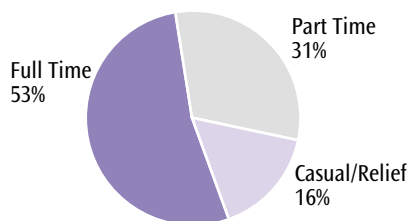
Figure 4.14: Age Distribution, Acute Care Workers, Selected Health Occupations, NS



Employment Status

More than half (53%) of acute care (hospital) workers were employed full time, almost one-third (31%) part time, and the remaining 16% worked on a casual/relief basis (Figure 4.15).

Figure 4.15: Employment Status, Acute Care Workers, NS, 2001



4.4.2 Mental Health Services

Mental Health Services is comprised of five core programs: mental health promotion, advocacy, prevention and education; inpatient program; outpatient and outreach; community mental health supports and specialty services. There were approximately 1,300 people employed in mental health services in Nova Scotia in 2002, with 90% in direct care related positions and 10% employed in a non-clinical or indirect care function. Data collected from the DOH, DHAs and in-field personnel from mental health services provided the following demographic information related to these direct patient/client care providers.

Major Occupations and Geographic Distribution

The following Table 4.13 identifies four major occupations that made up 80% of the direct care providers that worked in mental health services in Nova Scotia in 2001-02. Almost one half (48%) were registered nurses or community nurses, psychologists and social workers represented 14% and 13% respectively, and occupational therapists represented 5%.

Table 4.13: Mental Health Workers by Major Occupations, NS, 2002

DHA	Registered Nurses/ Community Nurses	Psychologists	Social Workers	Occupational Therapists	Other Direct
1	43%	17%	20%	3%	17%
2	38%	15%	20%	3%	25%
3	42%	21%	21%	n/a	17%
4	39%	23%	20%	11%	7%
5	14%	29%	29%	n/a	29%
6	63%	24%	11%	3%	n/a
7	44%	14%	7%	5%	30%
8	63%	7%	20%	6%	5%
9	51%	12%	6%	5%	25%
IWK	22%	26%	41%	11%	n/a
Total	48%	14%	13%	5%	20%

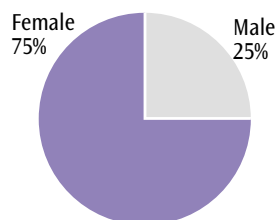
Source: Reported by DHAs, MIS 2001-02 in-field personnel

Other Direct Care includes: Dietetics, Psychiatric Attendants, Staff Physicians, CSW, RTs, In Home Support, Psychiatrists, Orderlies

Sex

Three quarters of individuals (75%) working in mental health services in Nova Scotia in 2002 were female (Figure 4.16).

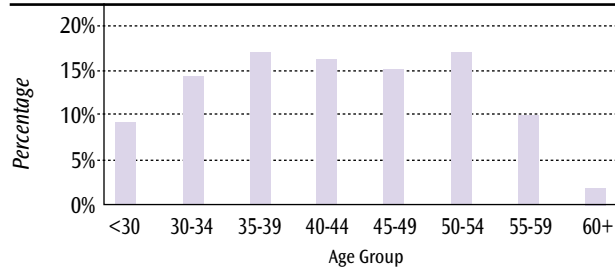
Figure 4.16: Sex Distribution, Mental Health Workers, NS, 2002



Age

Figure 4.17 shows the age distribution of direct care providers in mental health services in 2001-02. Of these, 29% were 50 years of age and older.

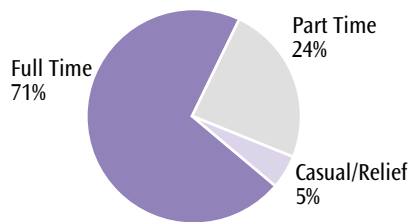
Figure 4.17: Age Distribution, Mental Health Workers, NS, 2002



Employment Status

Mental health workers were mostly employed on a full time (71%) or part time (24%) basis, with a small proportion (5%) of workers employed on a casual or relief basis (Figure 4.18).

Figure 4.18: Employment Status, Mental Health Workers, NS, 2002



4.4.3 Public Health

Public health services consist of an interdisciplinary team working in partnership with communities, families and individuals to prevent illness, protect and promote health and achieve well-being. More than 250 people were employed in public health in Nova Scotia in 2002, with 94% employed in a direct care related position and 6% employed in a non-clinical or indirect patient/client care function. Data collected from the DOH, the DHAs and in-field personnel from public health provided the following demographic information related to the direct care providers.

Major Occupations and Geographic Distribution

Table 4.14 identifies five major occupations that worked in Public Health in NS in 2002. Almost three quarters (74%) worked as public health nurses, with the remainder comprised of dental hygienists (9%), licensed practical nurses (6%), dietitians/nutritionists (6%) and health educators (5%).

Table 4.14: Public Health Workers by Major Occupations, NS, 2002

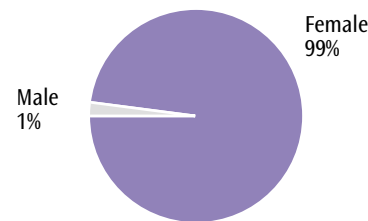
DHA	Public Health Nurses	Dental Hygienists	Lic. Practical Nurses	Dietitians/Nutritionists	Health Educators	Other Direct
1,2,3	71%	13%	6%	6%	2%	2%
4,5,6	72%	9%	3%	6%	9%	0%
7,8	81%	6%	7%	3%	3%	0%
9	69%	9%	7%	8%	6%	0%
Total	74%	9%	6%	6%	5%	0.4%

Source: Reported by DHAs, infield personnel

Sex

Almost all (99%) workers employed in direct patient/client care occupations in public health in 2002 were female (Figure 4.19).

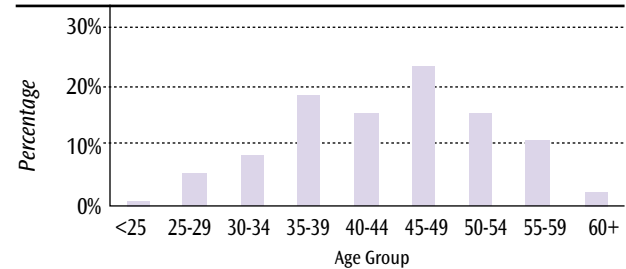
Figure 4.19: Sex Distribution, Public Health Workers, NS, 2002



Age

Figure 4.20 shows the age distribution of workers in public health in 2002. There were 29% of workers 50 years of age and older.

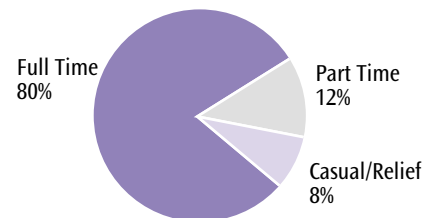
Figure 4.20: Age Distribution, Public Health Workers, NS, 2002



Employment Status

The majority (80%) of workers in public health were employed on a full time basis, with 12% employed part time and 8% on a casual or relief basis (8%) (Figure 4.21).

Figure 4.21: Employment Status, Public Health Workers, NS, 2002



4.4.4 Addiction Services

Addiction Services promotes the health of individuals, families and communities by providing prevention and health promotion programs. There were approximately 320 people employed in addiction services in Nova Scotia in 2002, with 85% employed in direct patient/client care related positions and 15% employed in a non-clinical or indirect care function. Data collected from the DOH, the DHAs and in-field personnel from addiction services provided demographic information related to these direct care providers.

Major Occupations and Geographic Distribution

Table 4.15 identifies four major occupations that worked in addictions services in Nova Scotia in 2002. They were counselors (40%), nurse rehabilitation counselors (25%), clinical therapists (21%), and community health workers (12%).

Table 4.15: Addiction Services Workers by Major Occupations, NS, 2002

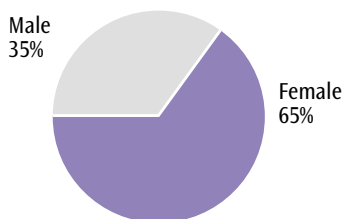
DHA	Counsellors	Nurse Rehab. Counsellors	Clinical Therapists	Community Health Wkrs.	Other Direct
1	22%	28%	22%	22%	6%
2	29%	38%	17%	13%	4%
3	50%	13%	19%	13%	9%
4	n/a	n/a	67%	33%	0%
5	47%	42%	n/a	11%	0%
6	40%	40%	12%	8%	0%
7,8	36%	33%	18%	13%	0%
9	47%	12%	28%	9%	3%
Total	40%	25%	21%	12%	2%

Source: Reported by DHAs, MIS 2001-02, in-field personnel
Other Direct Care includes: Physicians, Head Nurse, Primary Care Coordinators

Sex

Individuals employed in addiction services in 2002 were 65% female and 35% male (Figure 4.22).

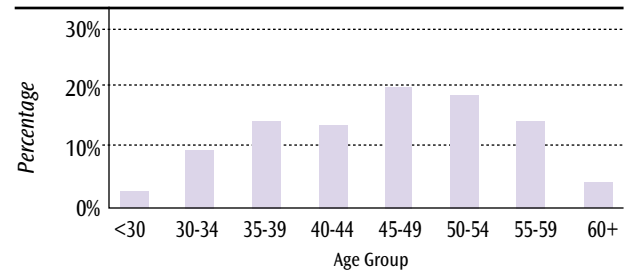
Figure 4.22: Sex Distribution, Addiction Services Workers, NS, 2002



Age

Figure 4.23 indicates the age distribution of addiction services workers. A noteworthy 38% of addiction services direct care providers were 50 years of age and older.

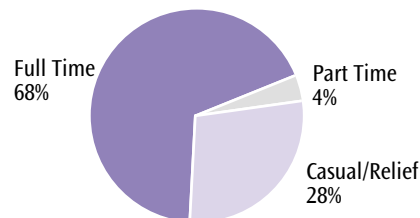
Figure 4.23: Age Distribution, Addiction Services Workers, NS, 2002



Employment Status

More than two thirds (68%) of people working in addiction services in 2002 were employed on a full time basis, with only 4% reported working part time. A significant proportion (28%) of addiction services workers were employed on a casual or relief basis (Figure 4.24).

Figure 4.24: Employment Status, Addiction Services Workers, NS, 2002



4.4.5 Long Term Care (nursing homes)

Information sourced for long term care facilities was comprised of 72 nursing homes. There were approximately 9,650 people employed in long term care (LTC) nursing homes in Nova Scotia in 2001, with 68% employed in direct patient/client care related positions and 32% employed in a non-clinical or indirect care function. Data collected from the DOH, and in-field personnel from nursing homes provided the following demographic information related to these direct care providers.

Major Occupations and Geographic Distribution

Table 4.16 identifies three major health occupations working in LTC nursing home facilities in Nova Scotia in 2001. Based upon the data collected from 47% of long term care facilities, more than half (54%) of the direct care providers were personal care workers/continuing care assistants, with registered nurses at 17% and licensed practical nurses at 13%. The remaining 16% were comprised of other direct care occupations such as recreation therapists/assistants, dietitians and physiotherapists.

Table 4.16: Long Term Care Major Occupations by DHA, NS, 2001

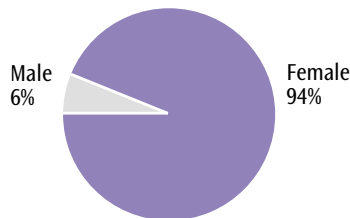
DHA	PCW/CCA	RN	LPN	Other
1	55%	17%	17%	11%
2	66%	15%	14%	5%
3	40%	16%	11%	33%
4	49%	47%	2%	2%
5	50%	17%	15%	19%
6	65%	18%	17%	n/a
7	65%	20%	11%	4%
8	52%	21%	17%	10%
9	59%	13%	9%	19%
Total	54%	17%	13%	16%

Source: Reported by DOH, Nursing Homes

Sex

Figure 4.25 indicates the sex distribution of direct care workers in LTC nursing homes in Nova Scotia in 2001. The overwhelming majority (94%) were female.

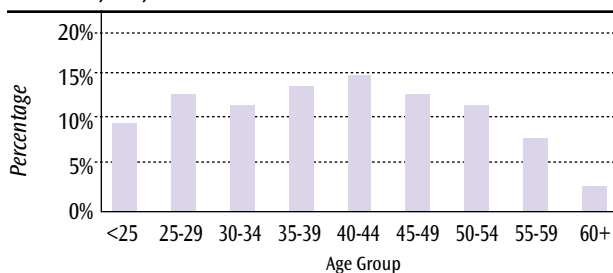
Figure 4.25: Sex Distribution, Long Term Care Workers, NS, 2001



Age

Figure 4.26 shows the age distribution of direct care providers working in LTC facilities in 2001. The average age reported for these workers was 39.7 years, and 21% were 50 years and older.

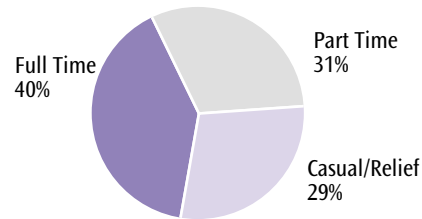
Figure 4.26: Age Distribution, Long Term Care Workers, NS, 2002



Employment Status

Figure 4.27 shows employment status of direct care workers in LTC facilities in Nova Scotia in 2001, with 40% employed on a full time basis, 31% on a part time basis and 29% on a casual or relief basis.

Figure 4.27: Employment Status, Long Term Care Workers, NS, 2001



4.4.6 Home Care/Home Support

Home care services provide chronic and acute home care services. Information obtained for home care and home support was comprised of VON located across the nine districts and 17 home support agencies in Nova Scotia. There were approximately 3,200 workers employed in home care/home support (HC/HS) in Nova Scotia in 2001, with 84% in direct care related positions and 16% employed in an indirect care function. Data collected from home care/home support agencies and the DOH provided demographic information related to these direct care workers.

Major Occupations and Geographic Distribution

Table 4.17 identifies four major health occupations that worked in HC/HS in Nova Scotia in 2001. Almost two thirds (63%) of these were home support workers/continuing care assistants. Care coordinators from various health disciplines comprised 16%, registered nurses 11%, and licensed practical nurses 7%.

Table 4.17: Home Care/Home Support Major Occupations by DHA, NS, 2001

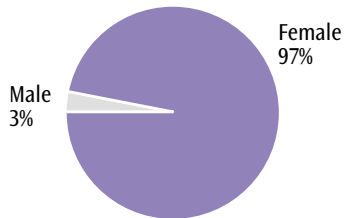
DHA	Care Coordinators	Home Support Workers/CCA	Registered Nurse	Licensed Practical Nurse	Other Direct
1	14%	64%	11%	7%	4%
2	9%	60%	19%	12%	0%
3	11%	59%	14%	7%	9%
4	19%	59%	13%	8%	0%
5	11%	58%	15%	10%	6%
6	19%	49%	25%	4%	2%
7	43%	43%	10%	4%	1%
8	18%	67%	5%	7%	4%
9	14%	67%	9%	7%	2%
Total	16%	63%	11%	7%	3%

Source: DOH, Home Care and Support Agencies, VON

Sex

Figure 4.28 shows sex by occupation of direct care related workers in HC/HS in Nova Scotia in 2001. The overwhelming majority (97%) were female.

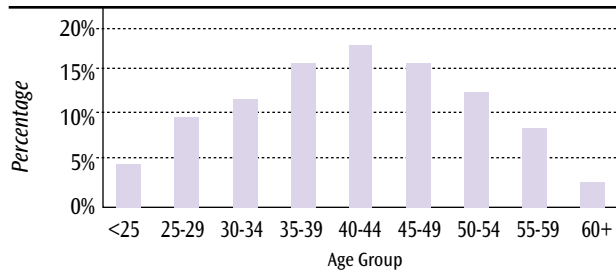
Figure 4.28: Sex Distribution, Home Care/Home Support Workers, NS, 2001



Age

Figure 4.29 shows the age distribution of direct care workers in HC/HS in Nova Scotia in 2001. The average age of these workers was 41.6 years, and 25% were 50 years and older.

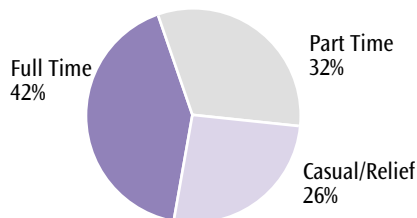
Figure 4.29: Age Distribution, Home Care/Home Support Workers, NS, 2001



Employment Status

Table 4.30 shows overall employment status of direct care workers in HC/HS in Nova Scotia in 2001. Direct care workers in Home Care / Home Support were employed full time (42%), part time (32%) and casual or relief (26%). It is noteworthy that overall, those working in home care had higher proportions of full time (53%) than those employed in home support agencies (39%). Conversely, workers in home care had lower proportions of part time (17%) as compared to those working in home support (35%).

Figure 4.30: Employment Status, Home Care/Home Support Workers, NS, 2001



4.4.7 Residential Care Facilities

There were approximately 590 community residential workers employed in residential care facilities (RCFs) in 2001, of which demographic information was available on 227.

Less than one third (27%) of community residential workers (CRWs) had completed post-secondary education or training. CRWs age 40 and under were more highly educated, as 39% reported post-secondary education.

Geographic Distribution

Table 4.18 identifies the geographic distribution of CRWs in 2001. The proportion of CRWs (42%) working in DHA9 was similar to the Nova Scotia population distribution for that district.

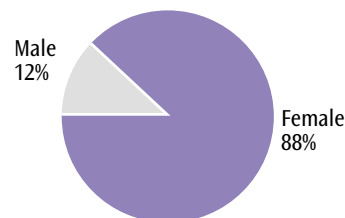
Table 4.18: Geographic Distribution, Community Residential Workers, NS, 2001

DHA	Percentage
1	3%
2	12%
3	19%
4	1%
5	7%
6	1%
7	n/a
8	15%
9	42%
Total	100%

Sex

Figure 4.31 shows the sex of CRWs in RCFs in Nova Scotia in 2001. The majority (88%) were female.

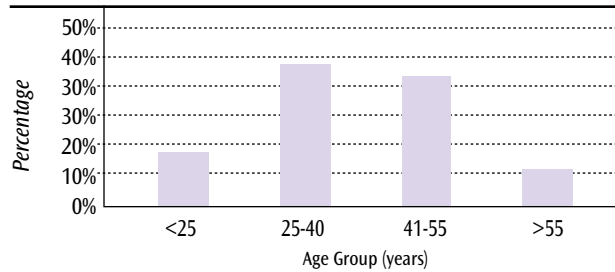
Figure 4.31: Sex Distribution, Community Residential Workers, NS, 2001



Age

Figure 4.32 shows the age distribution of CRWs in RCFs, with 75% of workers between the ages of 25 and 55 years in 2001. There was considerable age variation between DHAs, with 65% of workers in the Capital district 40 years or younger, as compared to 34% in the rest of the province.

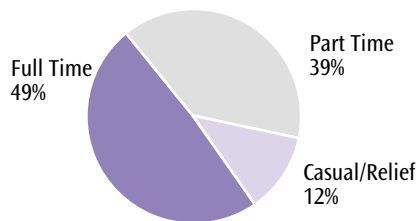
Figure 4.32: Age Distribution, Community Residential Workers, NS, 2001



Employment Status

Figure 4.33 shows the employment status of CRWs in Nova Scotia in 2001. Almost half (49%) were employed on a full time basis, with 39% employed part time and 12% employed on a casual or relief basis.

Figure 4.33: Employment Status, Community Residential Workers, NS, 2001



4.4.8 Community Based Options

There were approximately 3,500 community residential workers (CRWs) employed in community based options in 2001. Demographic information was obtained for 80% of these workers. CBOs include: adult residential centres (ARCs), regional rehabilitation centers (RRCs) group homes, developmental residences, workshops, small options homes, and supervised apartments.

The Department of Community Services employs more than 3,000 of the CRWs working in CBOs. The remaining CRWs were employed by the DOH. Demographic information was not available for those 500 or so CRWs employed by the DOH.

Of the two thirds of CBO workers with some post-secondary education or training, 29% had university degrees, 26% a certificate and 11% a diploma. Of the remaining one third, 30% had completed high school, and 4% had less than high school graduation. Notable variations existed geographically as 54% of workers in the Capital district had university degrees.

Geographic Distribution

Table 4.19 shows workers in CBOs in Nova Scotia were mostly located in DHA 9 (36%), and DHA 8 (21%).

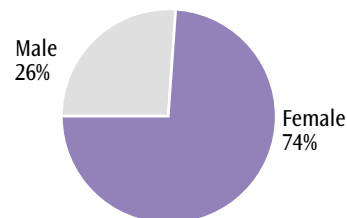
Table 4.19: Geographic Distribution, Workers in Community Based Options, NS, 2001

DHA	Percentage
1	5%
2	5%
3	15%
4	7%
5	4%
6	6%
7	2%
8	21%
9	36%
Total	100%

Sex

Figure 4.34 shows the sex distribution of workers in CBOs in Nova Scotia in 2001. Almost three-quarters (74%) were female.

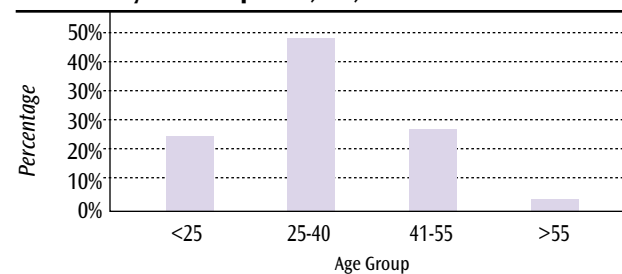
Figure 4.34: Sex Distribution, Workers in Community Based Options, NS, 2001



Age

Figure 4.35 indicates the age distribution of CBO workers in Nova Scotia in 2001, with 23% less than 25 years of age and almost half (49%) of workers between 25 and 40 of age.

Figure 4.35: Age Distribution, Workers in Community Based Options, NS, 2001



Employment Status

Overall, 43% of workers in CBOs were employed on a full time basis, 26% worked on a part time basis, and 31% were employed on a casual/relief basis (Figure 4.36).

Figure 4.36: Employment Status, Workers in Community Based Options, NS, 2001

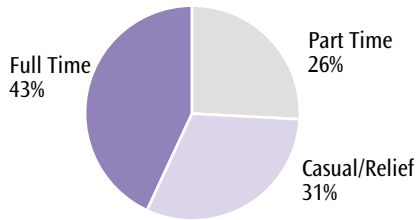
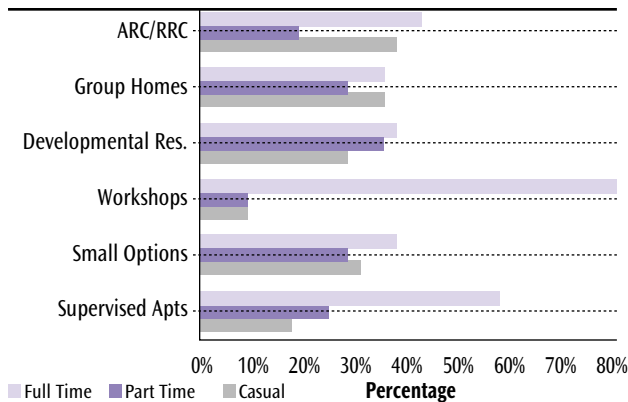


Figure 4.37 shows that employment status varied by type of facility, with full time employment ranging from 35% in group homes to 80% in workshop settings.

Figure 4.37: CBO Employment Status by Facility Type, NS, 2001



4.5 SUPPLY ISSUES

Reports of shortages of health care providers is not 'new' news. Historically, reports of periodic and cyclical imbalances in health care workers, mostly physicians and nurses, have been experienced in Nova Scotia. In recent years, however, the nature of this imbalance has been more pronounced. Reports of shortages have included other occupations, such as medical laboratory technologists, medical radiation technologists, pharmacists, and others. Furthermore, chronic health care shortages are being experienced by most provinces across Canada as well as internationally, making health care resources a global concern.

During consultation with key informants a number of perspectives arose on the issue of HR "shortages". For some occupations, shortages were considered a province-wide problem, while others were concerned with distribution-

related shortages in rural areas. Some occupations framed their shortage issue from the perspective of specific practice settings, while others highlighted shortages of workers with specific qualifications.

The following provides an overview of some of the supply related issues impacting future planning for the health workforce in Nova Scotia.

4.5.1 Declining Supply

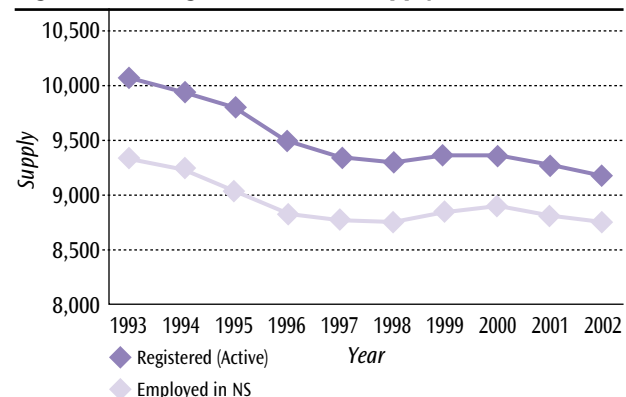
As indicated previously, over the past decade a number of occupations have experienced declines in the supply of workers employed in Nova Scotia. Among occupations profiled, the MLT workforce had the largest decline, with a 2.7% average annual decline. This represents the most significant 10-year decline among Nova Scotia health occupations profiled.

A shortage of MLT personnel can have significant implications for service levels. One key informant pointed out that laboratory test results are a critical component of physicians' decisions, and if they are not processed in a timely manner, there exists a potential for delay in patient diagnosis.

The lack of an entry-level medical laboratory education program in Nova Scotia was noted as a concern for MLTs.⁵³ The Nova Scotia Community College (NSCC) diploma program for general medical laboratory technology was closed in 1995, at a point in time when there existed a perceived surplus of MLTs.

Like elsewhere in Canada, Nova Scotia is widely considered to be in the midst of a serious shortage of registered nurses. From 1993 to 2002, the number of registered nurses employed in nursing in Nova Scotia declined by 0.6% per year, on average, resulting in 584 fewer RNs employed in the province (Figure 4.38). In comparison, the supply of RNs in Canada declined on average, 0.2% per year from 1993 to 2001.

Figure 4.38: Registered Nurses Supply, NS, 1993-2002

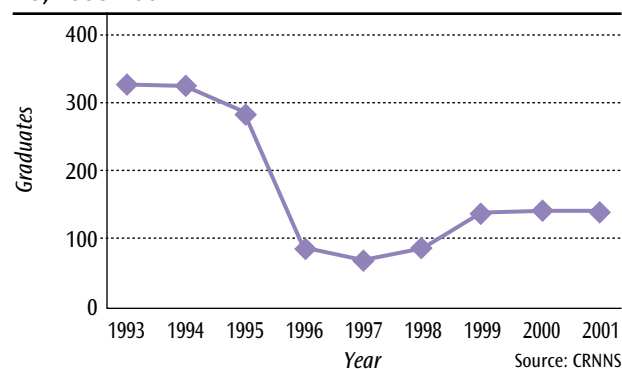


53. Health Canada. An Environmental Scan of the Human Resource Issues Affecting Medical Laboratory Technologists and Medical Radiation Technologists, 2001.

The most significant decline in the number of registered nurses employed in Nova Scotia occurred during the timeframe from 1993 to 1998. During this period Nova Scotia experienced a greater decline (6.3%) than other Canadian provinces (3.4%). In recent years, the supply of RNs employed in Nova Scotia has been relatively constant. The net change in nurses employed in Nova Scotia from 1998 to 2002 has been an increase of two RNs.

There was a substantial decline in the number of registered nursing graduates during the 1990s, corresponding with a decline in the number of funded seats in nursing programs in Nova Scotia and the closure in 1995 of the nursing diploma program (Figure 4.39).

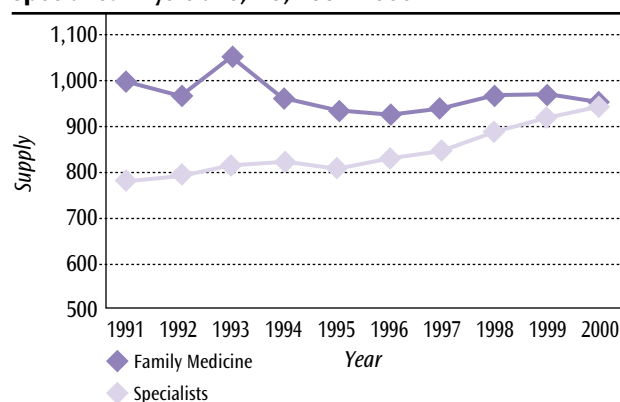
Figure 4.39: RN Entry Level Graduates, NS, 1993-2001



The Nova Scotia Nursing Strategy has introduced a number of recruitment initiatives for RNs. For instance, in 1999, enrolment in entry-level Bachelor of Nursing programs increased by 75 seats (a 35% increase). By 2003, with close to 200 RNs graduating, this represents more than double the number that graduated in 1997. In March, 2003 the DOH introduced further funding for an additional 60 seats, bringing the total annual intake of RN entry level education and training positions to 345 for the 2004-05 academic year.

Ensuring an adequate supply of physicians is a common concern for many Nova Scotians. Interestingly, the total number of physicians in Nova Scotia actually grew 0.6% annually from 1991-2000. Growth in physician supply in Nova Scotia during this time period, however, is largely attributable to an increase in the number of specialist physicians (Figure 4.40). The average annual rate of growth for FP/GPs over this timeframe was negative (-0.6%), while annual growth of specialist physicians in Nova Scotia averaged 2%. This decline in FP/GPs, coupled with the significant increase in specialists, has resulted in the proportion of FP/GPs to specialists decreasing from 56% in 1991, to 50% in 2001.

Figure 4.40: Supply of Family Medicine and Specialist Physicians, NS, 1991-2000



In the latter part of the 1990s the physician picture in Nova Scotia had improved. From 1997-2000, the number of FP/GPs in Nova Scotia increased 3%⁵⁴. Nonetheless, the growth in supply of FP/GPs still remains somewhat disproportionate to that of specialists, as evidenced by a 12.6% increase in specialists in Nova Scotia from 1997-2000 (vs 5.8% increase in specialists for Canada).

The decline in FP/GPs licensed in Nova Scotia over the past decade is potentially more significant than licensure data suggests. Table 4.20 compares the number of physicians practicing in 2000-2001 by licensed versus functional⁵⁵ specialty. From a functional perspective, approximately 10% of FP/GP physicians in Nova Scotia are practicing in specialty areas other than family medicine. These FP/GPs are practicing in fields such as emergency medicine, psychiatry, and anaesthesia.

Table 4.20: Physicians Licensed vs. Functional Specialty by Specialty Group, 2000-2001

Specialty Group	Licensed	Functional	Difference	
			Number	Percentage
FP/GP	957	862	-95	-10%
Anaesthesia	105	113	8	8%
Diagnostic Radiology	88	91	3	3%
Emergency medicine	10	59	49	490%
General Internal Medicine	116	87	-29	-25%
General Surgery	73	71	-2	-3%
Internal Medicine Subsp.	126	155	29	23%
Laboratory Specialties	42	46	4	10%
Ob/Gyn	55	54	-1	-2%
Other	13	32	19	146%
Paediatrics	92	94	2	2%
Psychiatry	148	157	9	6%
Surgery Subspecialties	164	168	4	2%
Total	1,989	1,989		

Source: DOH Physician Database

54. CIHI, Health Personnel in Canada, 1991-2000.

55. Functional specialty is identified by the DOH through several factors including licensed specialty, physician payment information, telephone contact with physicians, newspaper announcements, information provided by hospitals and District Health Authorities and other sources of information.

In 2000, the proportion of FP/GPs to specialists based on 'licensed' specialty was 50 to 50. However, this ratio based on 'functional specialty' translated to 43% FP/GPs to 57% specialists.

It is difficult to determine with certainty what accounts for the greater growth in specialists as compared with FP/GP. One concern raised by key informants was changing lifestyle expectations (see Chapter 6), coupled with higher debt loads, have given rise to changing preferences for specialty practice over family medicine. Another reason commonly given for the lower growth in FP/GPs was the elimination in 1993 of the rotating internship as the training requirement for licensure as a FP/GP in Canada. The change to a two-year residency program for family medicine may have led to a decrease in the number of postgraduate trainees choosing family medicine.

It is noteworthy, however, that the Canadian Post-MD Education Registry indicates there has been a steady increase since 1994 in the number and proportion of first-year trainees entering FP/GP training at Dalhousie, as well as the number of residency trainees completing their residency training⁵⁶ in FP/GP Medicine. For instance, first-year post-MD trainees in Family Medicine at Dalhousie increased from 28 in 1994 to 38 in 2000 (36% increase). The number of residency trainees who completed their post-MD training at Dalhousie in FP/GP increased from 22 in 1994 to 35 in 2000 (59% increase). One source noted it was common prior to 1993 for residents to apply for licensure as a FP/GP in order to moonlight during residency training.⁵⁷ This may have led to an artificial overstatement of the number of FP/GPs based on licensure data.

The *medical radiation technology* (MRT) workforce, comprised of radiological technology, radiation therapy, nuclear medicine technology, and magnetic resonance imaging technology⁵⁸, experienced 0.7% annual decline in supply from 1991-2000. More recently, from 1998-2001, supply declined by 7%. Shortages in the number of medical radiation technologists and medical radiation therapists has been attributed at the national level to an expansion in services, high attrition rates, and an underutilization of training capacity within the school system.⁵⁹

While a 3-yr diploma and 4-yr degree program exists for medical radiation technology in Nova Scotia, there still is no *medical radiation therapy* program in Atlantic Canada. The academic site for medical radiation therapy training is Michener Institute in Ontario. The QEII sends 4 to 6 students a year to Michener through a return for service agreement and thus, is responsible for recruitment into the program.

56. The practice entry cohort comprises physicians who have completed post-MD training and are legally able to work in Canada (source: Canadian Post-MD Education Registry).

57. Key informant interview

58. Definitions provided by the Nova Scotia Association of Medical Radiation Technologists (NSAMRT) and the Canadian Association of Medical Radiation Technologists

59. Canadian Association of Medical Radiation Technologists (2000), Human Resource Planning Issues Affecting Radiation Therapists

4.5.2 Impact of Impending Retirements

As indicated previously, the health workforce is aging. There are at least a dozen occupational groups with an average age of 40 years or more. Most of these occupations have more than one in five who are over the age of 50 years, and will therefore be approaching retirement age in the near future. A concern is that there will be too few new recruits to replace those who retire over the next decade, potentially leading to shortages and disruptions in service levels.

The aging of the registered nurse workforce has the potential to impact virtually all areas of health care service delivery in the province. The average age of RNs in Nova Scotia increased from 39.3 years of age in 1993 to 43.9 years of age in 2002. In 2002, 30% of nursing health workforce was 50 years and older, with only 18% under 35 years of age.

Employment settings in continuing care may be among the first to feel the impact of an aging RN workforce. Registered nurses who care mostly for elderly patients are aging the most rapidly. For instance, 44% of *gerontology registered nurses*⁶⁰ (registered nurses who work mostly with elderly Nova Scotians) were 50 years of age or older in 2002, whereas only 3% of gerontology RNs were under 30 years of age. This represents an aging of gerontology RNs since 1993, when 30% were 50 years of age or older and 13% were under 30 years. If this trend continues, there will be too few registered nurses with experience caring for the elderly in home care and nursing home settings. As Table 4.21 indicates, registered nurses in all employment settings have average ages that are older as compared with the average for RNs in hospital settings.

Table 4.21: RN Average Age in Years by Selected Employment Setting, NS, 2002

Employment Setting	Average Age
Self Employed	52.6
Educational Institution	48.0
Mental Health Centre	47.4
Private Nursing	47.2
Nursing Home/Long Term Care	47.2
Physician's Office/Family Practice	47.0
Association/Government	46.6
Rehabilitation	46.4
Business/Industry/Occupational	46.4
Community Health Agency	46.1
Home Care Agency	45.5
Hospital	42.5
Overall Average	43.9

Source: CRNNS

60. Registered nurses who list 'geriatric' as their primary area of responsibility to the College of Registered Nurses.

Among registered nurses, a trend worth noting is that older nurses are increasingly more likely to work on a casual basis. The proportion of older workers (i.e. 65 years of age and older) working on a casual basis increased from 18.5% in 1998 to 31.2% in 2002. This suggests that RNs approaching retirement age are not permanently leaving the workforce but choosing to maintain their license by working a reduced number of hours.

Looking ahead, the physician workforce in Nova Scotia also faces impending retirements. Given the long lead time to educate a new physician (6-10 years from first year of medical school), the impact of impending retirements is an immediate concern for Nova Scotia. In 2000, the average age of physicians in Nova Scotia was 46.8 years, with approximately one-third (34%) of physicians 50 years of age or older.⁶¹ This translates to almost 700 Nova Scotia physicians approaching retirement age and/or winding down their practices within the next decade. Specialty groups with the highest average age were general surgery (52.4 years), psychiatry (49.8 years) and surgery subspecialties (49.4 years). All physician specialty groups except emergency medicine were, on average, greater than 45 years of age.

One issue for physicians is that as they age they may change their workload either by working fewer hours, or providing a different range of services. For instance, the Department of Health physician database shows that older FP/GP physicians see fewer patients, on average, than other physician age groups. FP/GPs over 60 years of age had 17% fewer 'unique patients' than the average FP/GP in 2000-2001. Specialists over 60 years of age had 11% fewer unique patients per physician than the average specialist. One reason for this may be that older FP/GPs have a higher proportion of older patients; 42% of the older FP/GPs workload was attributable to patients 65 years and older, as compared to an overall average of 31% for all FP/GP workload.⁶²

Physicians recruited from other countries may also be facing impending retirements. Three quarters (75%) of International Medical Graduates (IMGs) practicing in Nova Scotia had 20 years or more experience in 2000. This compares with 51% of Dalhousie graduates and 37% of Canadian medical school graduates. It is noteworthy that only 5% of IMGs have less than 10 years experience, as compared to 15% for all physicians. This suggests IMGs practicing in Nova Scotia are, on average, older than Dalhousie and Canadian medical school graduates. If retiring IMGs are replaced by graduates of Canadian Medical Schools, this could have implications for recruitment into rural areas, since graduates of Canadian Medical Schools currently have a much higher concentration (62%) in the Capital District.

Adding to the lack of a local entry-level training program, the MLT workforce also has a significant proportion eligible for retirement in the next 10-15 years. In 2001, the average age of certified MLTs in the province was approximately 44 years, and 17.4% were over 50 years of age. In contrast, only 9% of the certified MLT workforce was under 30 years of age, suggesting a positive shortfall between impending retirements and new recruits.

In the future, there is potential for retirements to negatively impact the supply of dentists in Nova Scotia. Dentists in Nova Scotia are among the oldest of health occupations, with an average age of 43.8 years. Dental specialties in particular had higher than average ages as compared to the average for all dentists (Table 4.22).

Table 4.22: Average Age of Dental Specialties by Specialty, 2001

Specialty	Average Age
Paediatrics	59.5
Oral Pathology	51.5
Oral Surgery	50.4
Prosthodontics	49.3
Orthodontics	47.9
Periodontics	47.7
Endodontics	46.3
General Practice	43.0
Average	43.8

Source: Provincial Dental Board of NS

4.5.3 Increasing Proportions of Females

Most occupations in the health care industry have historically been dominated by females. Exceptions were occupations of medicine, dentistry and pharmacy, which were largely comprised of males. However, these male dominated occupations are gradually increasing the proportion of females among younger age groups. This is largely the result of recent increases in female participation in health education programs.

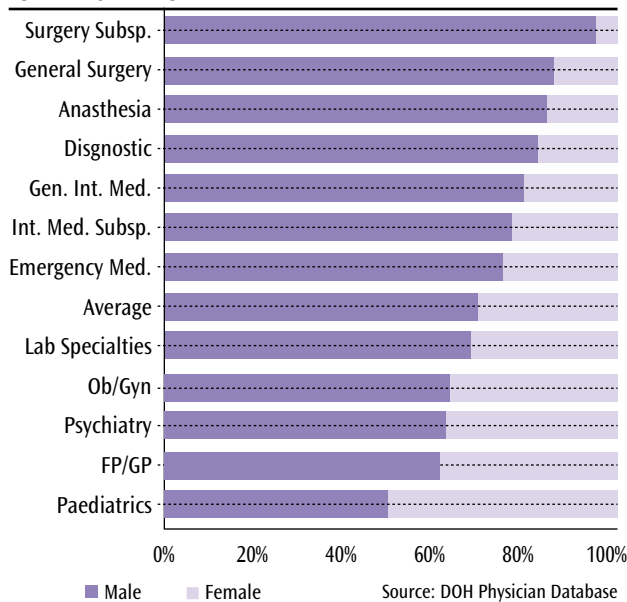
Increasing numbers of female graduates becomes a planning issue for some health disciplines, especially as it relates to female participation and productivity within the labour force. For instance, the supply, specialty mix, practice patterns and distribution of female physicians are important considerations for future planning. While females currently comprise less than one-third (31%) of the physician supply, they account for 53% of the first-year enrolments in Dalhousie medical school.

61. DOH Physician database, 2000-2001 information

62. DOH Physician database, 2000-2001

Figure 4.41 illustrates that female physicians are mostly concentrated in a limited number of specialties, including paediatrics (51%), FP/GPs (39%), psychiatry (38%), obstetrics/gynecology (37%) and laboratory specialties (33%). Females are noticeably scarce in surgery subspecialties, accounting for only 5%.

Figure 4.41: Sex Distribution of NS Physicians, by Specialty Group, 2000



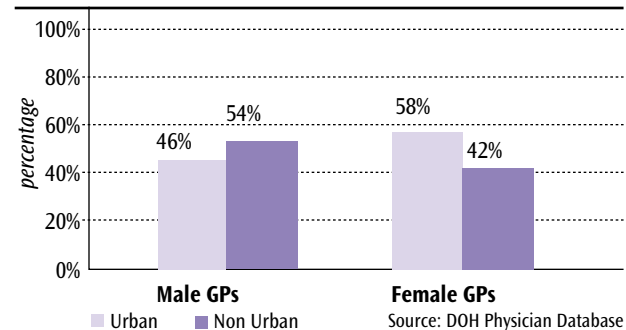
The situation in Nova Scotia is not unique, as there are increasing proportions of females in these residency training positions in Canada. This trend signals that the addition of more females to the physician supply will likely exacerbate sex differences in physician specialty mix.

Increasing proportions of female physicians may have implications for future physician planning from a workload perspective. According to CIHI and a CMA 2001 Survey⁶³, female physicians practice 20% less than their male counterparts (as measured by health service billing data and self-reported work hours).⁶⁴ In Nova Scotia, female family/general practice physicians' service volume has been consistently running at two-thirds (67%) of their male counterparts since 1992-93.⁶⁵

An increasing proportion of female physicians may also have implications for the future geographic distribution of FP/GP physicians. Figure 4.42 indicates 58% of female FP/GPs are located in urban areas, as compared to 46% of male FP/GP physicians. Although these percentages are not substantially

different, this could have implications for recruitment of FP/GPs into rural practice as the proportion of female FP/GPs increases over time.

Figure 4.42: Sex of FP/GPs, Urban and Non-Urban, NS, 2000-2001



4.5.4 Geographic Distribution

As mentioned previously, there were some occupations which had a high concentration of workers located in the capital district. A shortage of health care workers outside urban areas is a recurring challenge for some health occupations. Attracting health care workers to rural and remote communities may be a challenge due to the isolated nature and restricted resources available in some areas.

Recruitment of rural physicians in under serviced areas has been an ongoing priority for Nova Scotia. There is increasing recognition that recruitment and retention initiatives must address the working conditions and lifestyle issues of rural practice. Rural physicians typically have less professional support compared to their urban counterparts, but must practice with expanded roles, often necessitating advanced competencies. As well, their levels of on-call responsibilities can limit opportunities for vacation or personal leave.⁶⁶

A review of recruitment and retention initiatives for rural physicians in other jurisdictions reveals a number of interesting trends. Although the traditional focus of recruitment efforts has been the payment of direct, financial incentives (e.g. signing bonuses, relocation incentives, etc.), some jurisdictions have started to supplement these financial incentives with other recruitment tools such as:

- changing admission policies to medical schools in an attempt to increase intake of students from rural backgrounds;
- exposing medical students to rural practice through 'rural tours' during first and second year, and providing funding for rural internships and residencies (accommodation and travel) and rural preceptors;

63. Canadian Medical Association, "The CMA Physician Resource Survey - Taking the Pulse 2001", CMA, Ottawa, 2001

64. Canadian Institute for Health Information. From perceived Surplus to Perceived Shortage: What happened to Canada's Physician Workforce in the 1990's? Benjamin TB Chan, June 2002.

65. Department of Health, "General/Family Practice in Nova Scotia - Recent Trends, Future Directions", Prepared by Health Economics Branch, June 2002.

66. Rural and Remote Practice Issues. Canadian Medical Association Journal, Oct 17, 2000: 163 (8): 1047 - 1050.

- providing up to a year of additional skills training for medical residents, to enable them to enhance their skills to practice in rural areas;
- increasing the capacity of rural continuing medical education to provide advanced skills training programs to rural practitioners;
- recruiting international medical graduates, including resources to assist international graduates to prepare for licensure; and
- expanding the roles of other health care providers, such as nurse practitioners, to fill gaps in under-served areas.

Some researchers have suggested that greater use of technologies may help to alleviate the geographic barriers to patients accessing services. Telehealth services offered in Nova Scotia include: tele-radiology, tele-dermatology, tele-psychiatry, tele-emergency, etc. Future technology developments that can potentially impact service delivery include tele-homecare, tele-consults, and the electronic patient record.

Occupational therapists also suggested that rural areas may be particularly vulnerable to shortages of occupational therapists. Key informants indicated that shortages of occupational therapists continue to appear in rural areas. These positions were considered to be professionally challenging, due to the isolated nature and restricted resources available in some areas.

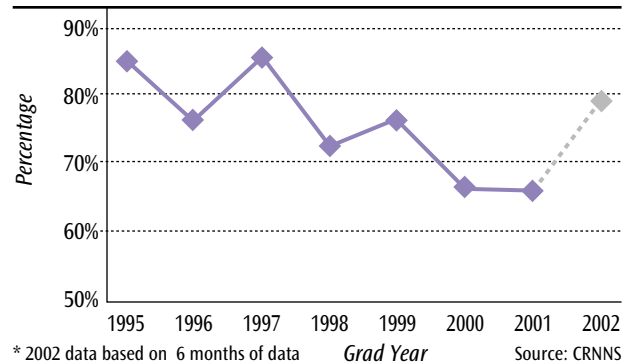
4.5.5 Recruiting and Retaining New Graduates

Recruiting recent graduates from Nova Scotia education and training programs is critical for Nova Scotia to be self-sufficient in the production of new health care workers. Reports of aggressive recruitment campaigns and generous financial incentives from other regions, directed towards recent Nova Scotia graduates, raises concerns over how well the province can alleviate supply shortages through expansion of local education and training programs.

Unfortunately, for many health professions in Nova Scotia, there is little information collected on the proportion of recent graduates who remain in the province following graduation.

The out migration of recent graduates from degree-granting nursing schools in Nova Scotia is an ongoing concern. During the mid to late 90s there was a steady decline in the proportion of graduates from nursing programs in Nova Scotia who remained registered in the province one year following graduation (Figure 4.43). The proportion of graduates registering in Nova Scotia one year following graduation went from 84% in 1995 to 66% by 2001.

Figure 4.43: Percentage of NS RN Graduates Registered in NS One Year After Graduation, 1995-2002

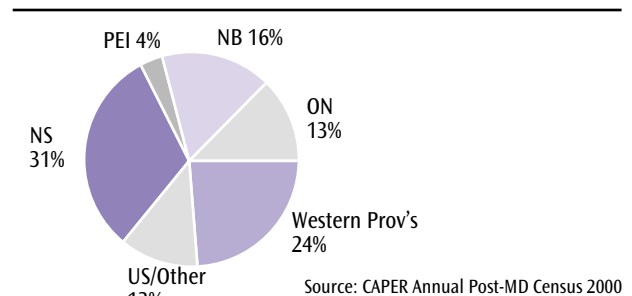


There are signs, however, that this situation is improving. The CRNNS noted that 82% of the 2002 graduating class (spring convocation) were registered to practice in Nova Scotia for the 2003 registration year (as of December 2002).⁶⁷

Nova Scotia does not seem to be losing licensed practical nurse (LPN) graduates to the same extent as registered nurses. From 1996 to 2000, there were 727 graduates from licensed practical nursing programs in Nova Scotia. Of these, 567 (78%) were licensed in Nova Scotia in 2002. It was not possible to determine the status of the remaining 22% of graduates (e.g. moved elsewhere versus career changed or unemployed).

How many physician trainees stay in Nova Scotia following their residency training? Figure 4.44 shows the practice location of the 1998 Dalhousie residency trainees, two years after finishing their residency training. In 2000, 31%, or 25 of the 80 who completed their residency training at Dalhousie in 1998, were practicing in Nova Scotia. The Atlantic Provinces overall retained about half (51%), or 41 of Dalhousie's 80 post-MD trainees, from the 1998 class.

Figure 4.44: Where they Went - Practice Location of Dalhousie 1998 Residency Graduates, 2 Years Later, in 2000



67. CRNNS 2002 Annual Report

Trend wise, the proportion of Dalhousie residency graduates practicing in Nova Scotia two years after completing their residency training has declined, from 46% in 1995 to 31% in 2000.⁶⁷

It should be noted, however, that while Nova Scotia only retained about one-third of Dalhousie residency trainees, it imports from other provinces. Of the 48 physicians practicing in Nova Scotia in 2000 who completed their residency training two years prior (in 1998), about one half (52%) completed their residency training in Nova Scotia. The remainder completed their residency training in another province. This is consistent with the overall supply of physicians educated in Nova Scotia, in that 50% are Dalhousie graduates.

Nova Scotia relies heavily on locally trained dentists in the delivery of oral health care services. The vast majority of dentists in Nova Scotia are graduates from Dalhousie's Faculty of Dentistry. Data obtained from the Provincial Dental Board of Nova Scotia indicated 88% of dentists were Dalhousie dentistry graduates, 10% were graduates of other Canadian dental schools and 2% were graduates from international schools.

Although most dentists in Nova Scotia are educated locally, only a small proportion of the annual Faculty of Dentistry graduating class actually ends up practicing in Nova Scotia after graduation. In 2001, there were seven dentists registered in Nova Scotia out of a Dalhousie Dentistry graduating class of 35 in 2000. Thus, one year after graduation, Nova Scotia retained approximately 20% of the 2000 graduating class. Between 1996 and 2000 there were 178 Dalhousie dentistry graduates, of which 50 (28%) were licensed to practice in Nova Scotia in 2001.

There was limited information on other health care providers who move to/from Nova Scotia. A recent survey of 2001 Dalhousie pharmacy graduates (64) indicated 33% of graduating students were employed in Nova Scotia one year following graduation, 16% of graduating students were working in New Brunswick, 10% of graduating students were employed in PEI and 19% were employed in Ontario. As well, 17% of students went on to further education (including pharmacy residencies). There was one pharmacy graduate who had moved to the United States and three were reportedly working in other community settings, but had unknown practice locations.

Occupational therapists (OTs) also reported graduate retention statistics. In 2001, it was estimated Nova Scotia retained 12 out of 44 (27%) graduates from Dalhousie's occupational therapy (BScOT) program in 2001. However, key informants noted that less than one-half of total enrolments in the BScOT program (45% in 2000-01) were from Nova Scotia. Therefore, it is not reasonable to expect that out of province students may return to their province of origin upon graduation.

4.5.6 Changing Employment Settings

During consultation with key informants each group or individual was asked the following question: "within the existing system, what population/client groups are you currently under-servicing?" Lack of adequate services for seniors, particularly in home care or long-term care settings, was a common observation.

One trend likely to impact future program delivery involves the movement of registered nurses out of hospital settings, and into community based settings, such as home care and long-term care. From 1993 to 2002, RNs employed in hospital settings have been declining at an average rate of 1% per year, whereas RNs employed in nursing homes have been growing at a rate of 1.8% per year. As well, home care has experienced significant growth, with a tripling of its RN employment over this timeframe.

Lack of funding for full time dietitians in community settings reportedly results in recruitment problems, especially in rural areas and long-term care facilities. A number of facilities have funding for 0.3 to 0.5 FTE's, which in turn results in recruitment challenges, especially for new grads requiring an FTE position to adequately reduce their debt loads. The resulting vacancies are thought to pose a strain on the existing workload for full time dietitians.⁶⁸

Nationally, there has been a significant shift in the practice patterns of occupational therapists toward community-based practice, many in a self-employed capacity with funding from private sources, in addition to/or in place of, public health care sources.⁶⁹ Occupational therapists indicated a view that their primary role could be better utilized in the home care setting, where they could be assisting the client in their transition/adaptation to their home environment. About two-thirds of occupational therapists in Nova Scotia are currently employed in hospital settings.

67. Derived from CAPER annual census documents.

68. Key Informant Interview

69. Canadian Association of Occupational Therapists. The Education, Supply and Distribution of Occupational Therapists in Canada.. November 22, 2001

Seniors face a number of barriers to obtaining adequate *oral health care*, including: the loss of dental insurance that comes with retirement; decreased mobility that comes with aging; and limited access to services in environments such as long-term care facilities. This is exacerbated by the fact that oral health services are not integrated into the overall health care service delivery model for seniors. For example, Nova Scotia legislation requires any senior entering a long-term care facility to have a physical exam, but an oral health examination is not part of this process.

Within the academic environment, the recruitment and retention of faculty is influenced by the private sector labour market. For instance, a key informant suggested that incentives are often not sufficiently attractive to recruit new faculty to the dentistry program, due to differences in earnings potential between private and public sectors.

Feedback from key informants at the DHA level indicated vacancies of pharmacists in hospital settings in some parts of the province had been an issue.

4.5.7 Shortage of Qualifications

A number of key informants also suggested there were shortages of qualified staff in some practice settings. For instance, representatives for dietitians noted feedback from some employers that there is a shortage of qualified people at the Masters level.⁷⁰ As of 2001, 22% of dietitians in Nova Scotia were educated at the Masters level. A shortage of doctorate trained psychologists for specific practice settings was also noted by key informants.

4.5.8 Measuring the 'Inflow and Outflow' of Health Care Workers

Defining the various components of the inflow and outflow of health care workers is critical, as it provides information necessary for informed decision-making regarding HHR planning and various recruitment and retention strategies. If the specific characteristics of the inflow and outflow of human resources were known, it would be possible to monitor the specific elements of the supply of the health workforce over time. Details on the nature and magnitude of the inflow and outflow of health providers enables enhanced supply projections and forecasting, as well as better information on which to create targeted marketing strategies for recruitment and retention of specific health occupations.

At the present time, there are gaps in information required to measure the inflow and outflow of health care workers. For instance, as indicated previously, registered nurses and physicians were the only occupations in Nova Scotia with sufficient detail on workforce mobility. Furthermore, projecting outflows due to retirements is not possible for those occupations without available information on age distribution. Also, the number and type of health workers who leave the workforce due to death, injury, illness, maternity, or career change, etc., is generally not available from regulatory bodies or professional associations. Lastly, as indicated previously, although the number of graduates from health programs each year is known, the number of graduates who remain in Nova Scotia each year following graduation is not known for many health occupations.

4.5.8.1 Example of Inflow/Outflow – Registered Nurses

The most comprehensive information available on the inflow and outflow of health care workers was for registered nurses (RNs). Each year, nearly 500 RNs register to practice in Nova Scotia.⁷¹ The annual inflow of RN registrants from 1994 to 2000 was comprised of the following:

- RNs who re-establish their registration following a period of absence. This component represented, on average, 43% of the inflow.
- Recent new graduates from Nova Scotia nursing programs. This represented 29% of the inflow.
- Recent new nursing graduates from other provinces. This represented 9% of the inflow.
- RNs that migrated from other provinces, to become new registrants in Nova Scotia. This represented 19% of the inflow.

70. Key Informant Interview

71. The inflow and outflow figures were derived from the College of Registered Nurses of Nova Scotia database. The inflow and outflow figures were examined from 1994 to 2002 in order to derive averages.

5.0 EDUCATING NOVA SCOTIA'S HEALTH WORKFORCE

5.1 INTRODUCTION

Each year, nearly a thousand students enter more than 90 health related education and training programs in Nova Scotia's community colleges, private career colleges and universities. Nova Scotia offers an education program for nearly every major health care discipline. These programs are vital to ensuring that the province has the right number and mix of health care providers with the right knowledge and skills to meet its health care needs.

Forces shaping changes in health care over the next decade will have implications for education and training of the health workforce. Changing population demographics, new models of service delivery, evolving scopes of practice and technological innovations are changing the numbers and mix of human resources required, as well as the kinds of skills needed, to deliver health services in the future.

Population demographics will create challenges. An aging, albeit healthier, and longer-living population means health care needs will gradually shift from predominately acute and episodic care, towards a greater emphasis on care for individuals with chronic health conditions living within their community. At the same time as the aging population creates pressure to increase enrolment in health programs, there will be challenges to maintaining sufficient enrolments, including a decline in the 18-21 year age cohort in Atlantic Canada from which new health workers would normally be drawn.

Education institutions will be called upon to adapt education and training programs to meet our changing health care needs. They will also need to replace retiring faculty, address capital and infrastructure requirements and increase their involvement in research and development activities. These challenges are significant, as there are concerns that Nova Scotia does not have sufficient critical mass and financial resources to sustain our education programs for health into the future.

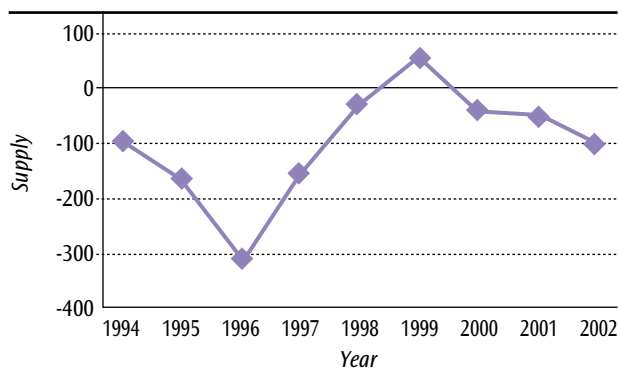
What can be done to address these challenges? The following sections will help to inform human resource planning efforts for health and health related disciplines by providing the following:

- Forces shaping changes in health care and the education system
- Characteristics of education and training for health disciplines in Nova Scotia
- Responding to challenges: education planning for health

In contrast the *outflow* of RNs who do not renew their registration because of retirement, out-migration, career change, illness, injury/disability and maternity, death, among other reasons. The difference between the inflow and outflow represents the *net gain/loss* of RNs registered to practice in Nova Scotia each year.

From 1994-2002, the *outflow* of RNs averaged 597 per year, and the *inflow* averaged 497 per year. This has resulted in a *net loss*, on average, of 100 RNs per year. Figure 4.45 shows the annual net gain/loss from 1994-2002. Cumulatively, there was a net loss of approximately 900 registered nurses registered in Nova Scotia over this nine year time frame. However, the situation is improving, as more recent years (1998-2002) indicate an average net loss of 34 RNs per year.

Figure 4.45: Registered Nurses Net Gain/Loss, NS, 1994-2002



At the present time the underlying causes for the outflow of RNs are not readily available. Given the magnitude of the annual outflow of RNs, particularly as increasing numbers of RNs retire over the next decade, a greater understanding of the nature of the specific outflow measures will become critical to optimize retention of RNs within the Nova Scotia workforce.

While we may not understand fully the 'why', we do know some basic information about the 'what', of RNs who do not renew their registration. The average age of those RNs choosing not to renew their registration in 2002 was 41.4 years, and about one third (32%) were 50 years of age or older. Another noteworthy characteristic of those RNs not renewing their registration in 2002 was their higher casual employment status at 26%, as compared to the average of 14% for the overall nursing workforce in Nova Scotia.

5.2 FORCES SHAPING CHANGE IN HEALTH CARE EDUCATION AND TRAINING

Labour market planning is typically driven by economics and based on the rules of supply and demand in the marketplace. The health industry is an anomaly to this, as it reflects a mix of social and economic models, with the social model predominant. The Canada Health Act (CHA) and its related social objectives of access, comprehensiveness, universality, portability, and public administration often take precedence over efficiency and cost effectiveness. The forces for change dealt with in this section should therefore be considered within that context.

5.2.1 Aging Population

The impact of the aging population on the overall health system was discussed in Chapter 3. The increased volume of health services associated with caring for a larger population of seniors will have a specific impact on education and training, resulting in a requirement for a different mix of occupational skill sets than we have today.

An aging population may increase demand for the following occupations:

- home care workers
- personal care workers
- licensed practical nurses
- registered nurses
- nurse practitioners
- physiotherapists
- respiratory therapists
- speech language pathologists
- occupational therapists
- dental hygienists
- palliative care counsellors

Source: Making Career Sense of Labour Market

An aging population will lead to increased demand for education and training institutions to expand enrolments in programs for workers at virtually all levels of education, including highly skilled workers (e.g. geriatricians, long-term care administrators, physiotherapists, occupational therapists, social workers, registered nurses), workers with community college level training (e.g. licensed practical nurses, personal care workers, home support workers) and individuals with little or no formal training in health care (unpaid providers, such as volunteers, family and relatives).⁷²

5.2.2 New Models of Health Care Delivery

As mentioned previously (Chapter 3) Nova Scotia is moving away from traditional medical models of health care and service delivery toward community-based, shared care models of service delivery. These models will require new ways of educating and training health care workers, including greater emphasis on interdisciplinary learning.

The move toward shared care models of service delivery may translate to a requirement for a different mix of occupational skills. During consultation with key informants it was apparent that various points of view existed among post-secondary institutions about which occupations and skill sets will be needed in community based health services in the future. The perspective from one key informant from Dalhousie's Faculty of Health Professions noted "what needs to change is the delivery of services, not the skills underlying such services."

Others pointed out that many services in long term care (LTC) and home care/home support (HC/HS) are currently being delivered by health care providers with community college level training, such as personal care workers and home support workers, or by unpaid providers and family care givers with little to no formal training. It was suggested that the community college system, which trains many of these workers, may be under-utilized for health discipline programs, especially for the 'assisting' occupations. The Canadian Occupational Projection System (COPS) occupational outlook for 2002-2007 in Nova Scotia is projecting more than 13% employment growth for 'assisting' occupations in support of health services, and an 11% increase for health workers overall.

5.2.2.1 Moving Away from Silos

The training of health care professionals in Nova Scotia, like other provinces in Canada, has historically occurred in silos, even where shared and overlapping scopes of practice exist within the work environment. This was highlighted as a concern in the final report of the *Commission on the Future of Health Care in Canada*, which recommended that a national Health Council "review existing education and training programs and provide recommendations to the provinces and territories on more integrated education programs for preparing health care providers, particularly for primary health care settings."⁷³

Dalhousie University already has experience in integrating training opportunities across disciplines. Dalhousie's Tri-Faculty Inter-professional Academic Advisory Committee provides inter-professional education opportunities between the faculties of

72. Summarized from Making Career Sense of Labour Market Information. Shaping Labour Market Trends. Table 3: Impact of Labour Market Trends in Occupations in the Health and Medical Sector.

73. Commission on the Future of Health Care in Canada, "Building on Values: The Future of Health Care in Canada," Final Report, p.250

dentistry, health professions and medicine. Although its impact on improving health outcomes is not yet clear,⁷⁴ there is increasing support for the concept of inter-professional education, particularly among students.⁷⁵

Several informants noted barriers to inter-professional education. For example, the Faculty of Medicine noted that to date the majority of Nova Scotia physicians are still practicing primarily in solo practice environments. Therefore, while students may become trained on the theory of collaborative practice, they have little opportunity to adopt these skills once they enter practice.

Formalized program articulation between universities and community colleges has had limited success to date. However, informal arrangements, collaboration, and increased interest were occurring. Potential exists for cooperation between university and college programs such as dentistry, pharmacy, recreation, kinesiology, nursing, and others.

In addition, similar program offerings at different institutions set curriculum independent of each other. For instance, Dalhousie's nursing model is designed with a focus on acute care settings, whereas the St. Francis Xavier (StFX) and University College of Cape Breton (UCCB) program focus is on a community-based model. The Applied Nutrition programs offered at three education institutions in Nova Scotia have differing orientations. This minimizes opportunity for coordinating curriculum development for health discipline programs, even where the same or similar program is offered at another educational institution. Program articulation between universities could enhance these offerings by providing standardization of the base curriculum for the same/similar program offerings.

5.2.2.2 Use of Multi-Skilled Workers

An emerging trend in some community settings involves the use of multi-skilled workers who are cross-trained to perform procedures and functions in two or more disciplines. For instance, there is increasing interest in having medical laboratory technologists cross-trained in X-ray, which is considered to be particularly relevant in rural areas.⁷⁶ An Alberta study revealed that just under half of the agencies and institutions surveyed employed multi-skilled workers, with community health units employing the greatest number of such workers. However, there is an absence of detailed research demonstrating the effectiveness of multi-skilled workers, particularly in community-based settings.⁷⁷

Furthermore, as noted by another key informant from Dalhousie, there is also a need to examine employment demand as well as regulatory structures for this kind of work:

There needs to be clear employment demand for such 'hybrids' and a regulatory regime for their work.. I note that we have a nurse practitioner programme that was much delayed by the lack of a regulatory framework for nurse practitioner practice.

5.2.2.3 Greater Acceptance of Complementary Service Providers

The public is increasingly receptive toward the services provided by alternative and complementary service providers. An April 2000 Ipsos/Reid survey indicated that half of Canadians have by now used complementary health care at some point in their lives, with chiropractic care being the most popular choice.⁷⁸ This will require the education system to adapt its curriculum, to allow for a broader knowledge base for professional practice. For instance, the College of Pharmacy at Dalhousie noted that herbal therapy is now an integral part of its curriculum.

5.2.3 Innovations in Technology

Technological innovations are being introduced in the health care system at an exponential rate. Innovations such as electronic health records, telehealth and the use of complex information systems, require much greater technical capacity and computer knowledge for many health occupations. This will require health care workers to continually upgrade their technical skills and become educated on advances. Furthermore, graduates will be expected to possess technological skills as part of the foundation of their knowledge and training.

Innovations in technology will increase demand for occupations such as:

- Chief information officers
- Database managers
- Computer application specialists
- Genetic counselors
- Molecular genetic technicians
- MRI technologists
- Mammography technologists
- Laser and lithotripsy technicians

Source: Making Career Sense of Labour Market Information.

Technological innovations will also increase pressures on education institutions to adapt education delivery models. For instance, the introduction of technology has made distance education increasingly more accessible to learners. While these advances will provide greater opportunities and enhanced potential for communication for students, it creates challenges

74. Zwarensten M et. Al (2001). Interprofessional Education: Effects on Professional Practice and Health Care Outcomes. The Cochran Library, 3. Oxford: Update Software.

75. Annual Report to the Senate Academic Priorities And Budget Committee: Health Studies Coordinating Committee, Re: Interprofessional Learning Project of the Faculties of Health Professions, Dentistry and Medicine. Submitted by: Carol Smillie, & Lois MacGregor, co-chairs, 2000/2001 and Maureen White, Tri-Faculty IPL Coordinator. Obtained from <http://is.dal.ca/~fhp/ippl/reportmay2001.doc>

76. Health Canada. An Environmental Scan of the Human Resource Issues Affecting Medical Laboratory Technologists and Medical Radiation Technologists, 2001.

77. Building a Stronger Foundation: A Framework for Planning and Evaluating Community-Based Health Services in Canada. Pong, Raymond W, Saunders, Duncan, Church, John, Wanke, Margaret, Cappon, Paul (1995). Component 1: Health Human Resources in Community-based Health Care: A Review of the Literature. Health Canada.

78. Ipsos/Reid, Alternative Medicines and Practices. Canadian Lifestyles II. 2000 July/August; 15(4): 85-93

for education institutions to build and maintain the technological infrastructure to deliver programs. Furthermore, faculty must be given adequate support for technology-based training and development in order to create successful distance education programs.⁷⁹

Technological innovations will also increase pressures on education institutions to contribute to research and development. Proportionate expenditures on university research in the United States are about double those in Canada. However, the situation is improving, as in 2000-01, Canadian Institute of Health Research (CIHR) had an injection of \$65 million, and the Canadian Health Sciences Research Fund (CHSRF) received an additional \$35 million to research the effectiveness of the Canadian health care system.

5.2.4 Regulatory Environment

The education and training of the health workforce in Nova Scotia is increasingly driven by national standards. National regulatory changes introduced over the past decade, such as Chapter 7 of the Agreement on Internal Trade (AIT), enable workers who are qualified for an occupation in one province to work in other provinces. Educational institutions are increasingly required to prepare graduates to practice to national competencies, thereby ensuring the portability of health professions. The accreditation process at the education and training institution is also driven by these nationally derived competencies. While provincial differences still exist, AIT will encourage increasingly standardized entry-level competencies and scopes of practice among regulated health care personnel.

Some occupations have faced challenges implementing the AIT regulations due to differences in entry-to-practice requirements between provinces. For instance, in Ontario, the AIT currently permits diplomas from Community College for social workers, whereas provincial regulations in Nova Scotia dictate minimum entry to practice requirements of a bachelor degree. For nursing, some provinces still accept diploma graduates, whereas Eastern Canada requires a degree. The national regulatory entity for Psychology accredits PhD programs only, whereas a masters level program is the recognized entry to practice for psychologists in many Canadian provinces. Lastly, the national competency for opticians includes education and training for contact lens fitting, whereas only 15% of Nova Scotia's opticians are certified to do contact lens fittings.

A concern raised by a number of informants was that these common competencies may become diluted to the lowest common denominator, such that they end up not reflecting or

aligned with, provincial or regional health service needs. In preparing graduates to practice to national competencies, no mechanism currently exists to ensure that local health needs are being met.

5.2.4.1 Increasing Credentials

As detailed previously, the entry to practice for a number of occupations which currently require a diploma are moving to a bachelor's degree, while several others are moving from bachelors to masters degrees. The potential of this creeping credentialism to affect both supply and distribution of health occupations has raised concerns.

One rationale for increasing credentials is that better-prepared graduates are thought to possess the critical thinking and problem solving skills required to keep pace with changes in the health care system. A key informant from Dalhousie summarized in this line of thinking:

In today's knowledge-based and technological (sic) advanced Canadian society, the health care system is one area of the economy that stands at the frontiers of complexity of knowledge and technology. While strictly technological functions may be mastered through on-the-job training or short-term technical training, successful preparation for a knowledge-based economy can only be achieved through education because education alone links teaching with theoretical foundations, research and clinical education. Furthermore, education provides core background knowledge that makes utilization of research possible – these gains seem to be readily dismissed as “creeping credentialism.” Today's knowledge-based and therefore complex economy places increasingly complex demands on the health professions. Under these circumstances, the awarding of degrees is justified.”

A benefit of increasing credentials is that it can allow new graduates to broaden their areas of practice to include research, teaching, management, and policy development. It can also create potential opportunities for recent graduates to practice in non-traditional employment settings.

5.2.5 Competition and Choices

The stated entry requirement for acceptance into many of the undergraduate health discipline programs is high school or the equivalent of one year of undergraduate study. Increasingly, however, student applicants have pre-existing undergraduate degrees. Key informants reported this for up to 50% of pharmacy, 65% of occupational therapy and 75% of applied nutrition applicants. Similarly, professions requiring a masters degree, such as speech language pathology and audiology, indicated an increasing intake of students applying with two pre-existing degrees.

The double degree situation facing many health professionals in Nova Scotia results in a double debt situation for the student, arising from eight or more years of post-secondary education to complete a four-year health program. This is an area worthy of

79. Irani, Tracy and Telg, Ricky. Building It So They Will Come: Assessing Universities' Distance Education Faculty Training and Development Programs. Journal of Distance Education/Revue de l'enseignement à distance (2002). ISSN: 0830-0445

further study, given that the average debt upon graduation from a four-year bachelor degree program in Nova Scotia has increased almost 2.5 times over the past decade, from \$9,000 to approximately \$22,000.

One potential contributing factor to the double degree and double debt situation may be the lack of direct entry into some health programs from high school. Unlike disciplines such as Engineering, Commerce and Business, which allow direct entry to programs following high school, health programs such as Occupational Therapy, Physiotherapy, Pharmacy, Social Work or Dental Hygiene have minimum entry requirements equivalent to one year university. This has led to qualified first year students having to compete with various levels of undergraduate and graduate education, both within and from other universities in the region. With the heightened competition for entry into these programs, there is a natural tendency to give preference to the student with a higher educational level.

High student debt has the potential to influence student behavior in ways that negatively impact planning. While not an issue for the 50% of students who graduate without debt,⁸⁰ increased debt may influence students' decision to enter a program, the choice of program and where to practice upon graduation. These are all key determinants which ultimately, can impact the number, mix and distribution of workforce supply. In addition to the financial hardship imposed from additional student debt, there is a potential societal cost from lost productive service to the health industry due to increased time in school.

Concerns have been raised by national dental and medical associations, regarding the impact of increasing student debt on student choices and well-being. Both groups expressed concerns that increasing tuition could be:

- Closing the door on those who cannot afford high tuition, or who wish to avoid high student debt loads, resulting in a less diverse student population, and, in turn, a less diverse workforce;
- Influencing students to choose specialty areas that which will maximize earning potential in order to pay off;
- Encouraging graduates to choose practice locations offering the best potential for quick debt repayment;
- Discouraging rural students from enter training, given higher costs, thus making rural recruitment more difficult; and
- Negatively affecting the health and well being of students, and new entrants into the labour force.

5.2.6 Enrolment Trends in Canada

In the 2001-02 academic year, Canadian universities served 1.3 million students and 34,500 full time faculty. There were 646,000 (60%) full time students, 275,000 (10%) part time students and 400,000 (30%) continuing education students. In the 1980's, the

Organization for Economic Co-operation and Development (OECD) reported the percentage of people attending university in Canada ranked number two in the world (behind the United States). By the end of the 1990's, however, Canada's ranking had dropped to number eight.⁸¹

Full time enrolment growth in Canadian universities peaked in 1992, leveled off and remained flat throughout most of the 1990's. However, from 1999-2001 enrolment growth has renewed itself once again, with an additional 45,000 (7.5%) full time students attending Canadian universities.

Enrolment increases are primarily influenced by two key demographic factors: growth in the population (of 18-24 year olds) and/or increases in the participation rate (proportionately more students attending educational institutions). Other key determinants include:

- Parental education and peer attitudes;
- Family income;
- Labour market demand; and
- Growth of the knowledge-based economy.

These factors are expected to translate over 2001-2011 into university enrolment growth of 20 to 30% , or an additional 200,000 students across the country. Some 20,000 more faculty will need to be replaced due to retirement and attrition, and another 20,000 more will be required to respond to projected enrolment growth.⁸²

While university participation rates are projected to be the primary driver of future enrolment growth in Canada in the coming decade, changing population demographics attributable to the influx of children of the baby boomer era is also expected to play a contributing role. From 2001-2011, the population of 18-21 year olds is projected to increase by 8.5%, and the 22-24 year olds by 6%.⁸³

This contrasts with the past twenty years when Canada experienced demographic declines in these age groups, and relied upon increasing female participation rates for university enrolment growth. Females have accounted for more than 90% of total enrolment growth in Canada in the past decade and now account for more than half (56%) of full time, and more than 60% of part time enrolments in Canadian universities.⁸⁴

Health program enrolment is predominately female. These programs have been able to take advantage of high female participation rates to maintain enrolments. However, growth in university full time enrolment in Canada in recent years has been in programs other than health, and females are increasingly choosing more diverse professions.

81. AUCC Trends 2002

82. IBid

83. IBid

84. IBid

80. Key Informant Interview, DOE

Table 5.1 indicates changes in total enrolment and in female enrolment for selected university programs in Canada from academic years 1994-95 to 1998-99. While Engineering, Business and Science experienced increases in total enrolments (7% to 8%), and in female enrolments (12% to 17%), the health related professions (Health and Psychology/Social Work) experienced declines in total enrolments (-5% and -9% respectively) and in female enrolments (-2% and -5% respectively).

Table 5.1: Full Time Undergraduate Enrolments, Selected Programs, Canada, 1994-95 to 1998-99

University Programs	% change	% change
	Total Enrolments 94-95 to 98-99	Female Enrolments 94-95 to 98-99
Science	8%	12%
Engineering	7%	17%
Business	7%	14%
Arts/Humanities	0%	3%
Education	-1%	4%
Health	-5%	-2%
Psychology/Social Work	-9%	-5%
Total	2%	5%

Source: Education in Canada 2000

Similarly, Table 5.2 indicates that while other industry sectors are increasing both enrolments in community colleges, (ranging from 10% to 23%), and in female intake (ranging from 11% to 45%), the health related programs decreased in both areas (enrolments -19%, and females -18%).

Table 5.2: Community College Enrolments, Canada, 1994-95 to 1998-99

Community College Programs	Total % change	Female % change
	94-95 to 98-99	94-95 to 98-99
Arts	17%	18%
Business	11%	11%
Engineering	23%	45%
Social Science	10%	18%
Health	-19%	-18%
Total	10%	11%

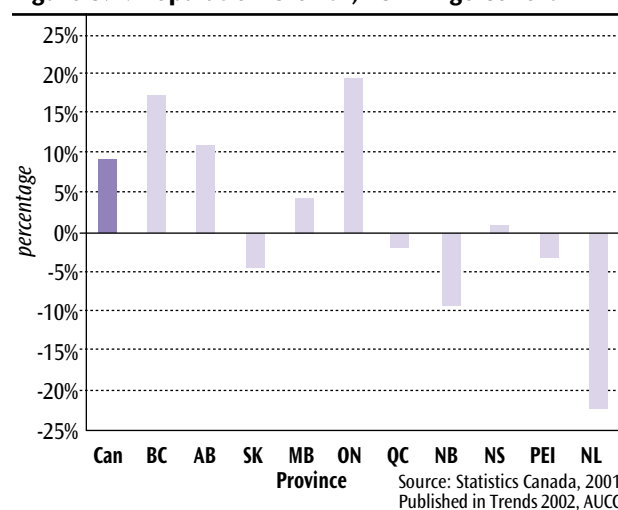
Source: Education in Canada 2000

These recent trends in female enrolments may have a negative impact on overall health program enrolment in Nova Scotia. Nova Scotia has a much higher participation rate (ratio of students to population in the same age group) among females

than the national average, likely because of the high influx of 18-21 year olds into its multiple university setting. The *Education in Canada, 2000* report indicated 65% of 18-21 year-old females and 47% of 18-24 year-old females attended post-secondary institutions in Nova Scotia in 1998-99 versus 35% and 38 % nationally.⁸⁵ At issue for Nova Scotia is whether it can continue to rely upon increased female participation to fuel enrolment growth for education and training of health care professionals.

Another issue for Nova Scotia involves the 18-21 age group. The so-called "echo" generation, a surge in children born between 1974 and 1991, will be heard in Ontario and the West, but not in the Eastern Provinces. Over the next decade, there is projected to be a decline in Quebec and negative or flat growth in the Atlantic Provinces for the 18-21 year age cohort, from which much of the enrolment in post-secondary institutions and health care occupations is normally drawn (Figure 5.1).

Figure 5.1: Population Growth, 18-21 Age Cohort



Looking ahead, the impact of negative growth in the Atlantic region for the 18-21 year old age cohort is difficult to predict. For the net effect of this population variable on enrolment growth likely results from its interaction with other key variables (e.g. debt, family savings, government transfers) that influence post-secondary enrolments in educational institutions. However, the net effect of negative population growth in the Atlantic region, coupled with Nova Scotia's significantly higher female participation rates than the rest of Canada, would suggest that Nova Scotia may need to recruit greater numbers beyond its Atlantic borders for educating its future health disciplines.

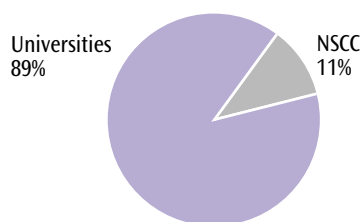
85. Education in Canada, 2000

5.3 CHARACTERISTICS OF HEALTH CARE EDUCATION AND TRAINING

5.3.1 Programs Offered in Nova Scotia

There were approximately 8,400 students enrolled in 90+ health-related programs in Nova Scotia at six universities (89%) and the Nova Scotia Community College (11%) in 2001-02 (Figure 5.2). In addition, there are a number of private career colleges offering a range of health education and training programs.

Figure 5.2: Distribution of Students Enrolled in Health Related Programs by Institution



In addition to education and training its own health care workers, several Nova Scotia educational institutions have a significant regional role. Nova Scotia has Provincial, Maritime and Atlantic health discipline programs (Table 5.3). A provincial program would typically produce graduates for the Nova Scotia labour market, whereas Atlantic or Maritime programs would give priority to Maritime and Atlantic students, and produce graduates for the same regions.

Table 5.3: Selected Health Discipline Programs Delivered in N.S.

Program in Nova Scotia	Provincial	Maritime/Atlantic
Continuing Care Assistant	X	
Cytology	X	
Dental Hygiene		X
Dentistry		X
Denture Technology		X
Dental Assisting	X	
Dental Technology		X
Applied Nutrition/Dietician	X	
Human Communication Disorders (Audiology/SLP)		X
Health Education (BSc)	X	
Health Services Administration		X
Human Service: Addictions, Res/Vocational Services	X	
Licensed Practical Nursing	X	
Medical Lab Technology (post-diploma program)	X	
Medical Radiation Technology	X	
Medicine		X
Occupational Therapy		X
Optician	X	
Pharmacy		X
Pharmacy Technology	X	
Physiotherapy		X
Clinical Psychology		X
Recreation Therapy - diploma	X	
Recreation Therapy - degree	X	
Respiratory Therapy	X	
Nursing	X	
Social Work		X

Source: Statistics Canada, Education in Canada 2000

Most of the health programs in Nova Scotia are provided by Dalhousie University (57%) followed by NSCC (15%). The remaining five institutions provide between two and seven health programs each.

5.3.2 Programs not Offered in Nova Scotia

Among the health discipline programs not offered in Nova Scotia are (Table 5.4): entry-level programs for medical radiation therapy, medical laboratory technology, optometry, midwifery and chiropractic. As well, much of the education and training for the various assisting occupations (associated with physiotherapy, occupational therapy, dietetics, audiology, etc) which typically produce certificate or diploma trained graduates are not offered locally.

Table 5.4: Selected Health Programs Not Offered in Atlantic Region

Program	Location	Formal Agreement Established
Chiropractic	CMCC, UQTR	No
Optometry	Waterloo, UQAM	No
Paramedic (P3)	PEI	Yes
Medical Laboratory Technology *	NBCC	Yes
Medical Radiation Therapy	Michener	Yes
Midwifery	McMaster, Ryerson, Trois-Rivieres, UBC	No

* Entry level diploma program

Where no provincial education programs exist, Nova Scotia obtains its supply by recruiting graduates from other provinces or by sending local students to education programs at schools outside the province. For some, government or employers purchase seats from education institutions outside the province to guarantee spots for Nova Scotia students. Examples of seat purchase agreements include:

- The DOH purchases 25 seats each year from the New Brunswick Community College to train medical laboratory technologists. Bursaries of \$8,000 (\$4,000 per year) are provided for each student, with a two-year return for service commitment. Employment following graduation is not guaranteed.
- The Queen Elizabeth II (QEII) purchases 4 seats each year from Michener Institute in Ontario to provide education and training for medical radiation therapists. Students are provided with a \$500 bursary each month they live in Toronto (first two years of the program) and have their full tuition paid by the QEII. There is a two-year return in service agreement and employment is guaranteed upon return.

There are several challenges associated with out-of-province health programs with subsidized seats. First, it is not clear who is responsible for recruiting Nova Scotia students into these programs to ensure adequate student representation from Nova Scotia. Secondly, there has been little or no formal follow up processes established to determine how many Nova Scotia students return to practice in the province once they graduate.

As noted previously, lack of an entry level education program has been noted as a concern for medical laboratory technologists.⁸⁶ In the meantime, government increased the

number of seat purchases in the New Brunswick community college program to 25. To address historically high attrition rates, the following strategies have been proposed:⁸⁷

- Introduction of an \$8,000 bursary for the 25 students (\$4,000 per year), with a one-year return for service commitment;
- Improved screening of students; and
- Work placements for students in local labs and hospitals.

The lack of a provincial education program for midwives was also noted as a concern.⁸⁸ With an increasing role contemplated for midwives in the delivery of primary care services in Nova Scotia, adequate access to education and training programs for midwives becomes an important consideration. In Canada, there are currently five universities offering baccalaureate degrees in midwifery.⁸⁹ Three are located in Ontario, one is in Québec and one is located in British Columbia.

Although Nova Scotia has not traditionally had an education program for Advanced Care Paramedics (ACP), a partnership was introduced in 2001 between NSCC, PEI's Holland College and Nova Scotia's Emergency Health Services, to deliver a training program locally. The first 20-month ACP class was introduced in the fall of 2001. There were 43 students training in three campuses around the province (Truro, Dartmouth and Middleton). The NSCC also hopes to introduce a program in Cape Breton. In 2003, the provincial government will build upon the bursary program offered by Emergency Medical Care (EMC), by offering bursaries for up to 13 advanced paramedics who agree to work in Nova Scotia.

Unrealized opportunities may exist in Atlantic Canada to create educational and training programs for a number of assistant level occupations. For instance, there is currently no local program available for physiotherapy or other rehabilitation support personnel in Nova Scotia. There is a program at the College of North Atlantic in Newfoundland, which offers a certificate for physiotherapists' assistants. It is noteworthy that New Brunswick has adopted a program that incorporates education and training for a number of rehabilitation assistant occupations (e.g. physiotherapy, occupational therapy, speech language).

5.3.3 Enrolment Characteristics of Nova Scotia Programs

Figure 5.3 shows Dalhousie University as the dominant education and training location for publicly funded health related programs, with 45% of total health related enrolments, encompassing over 50 different programs. The other five universities and the NSCC divide the remaining students fairly evenly, with St FX having the next largest share, with a health enrolment of 16%.

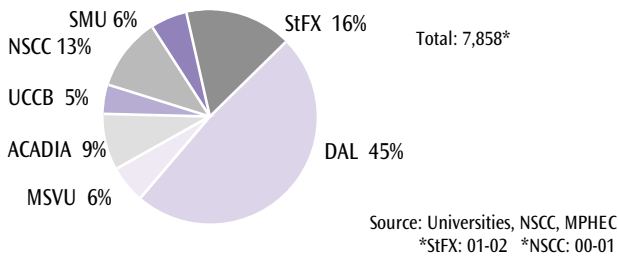
87. As outlined in Your Health Matters

88. Report of the Interdisciplinary Working Group on Midwifery Regulation

89. The Interdisciplinary Working Group on Midwifery Regulation recommended in its 1999 report that the requirement for midwives be a baccalaureate degree in Midwifery

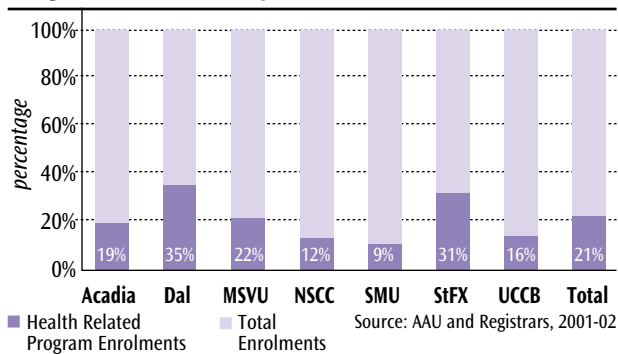
86. Health Canada. An Environmental Scan of the Human Resource Issues Affecting Medical Laboratory Technologists and Medical Radiation Technologists, 2001

Figure 5.3: Nova Scotia Health Education/Training Enrolments by Institution, 2001-02



Health-related programs represent a substantial share of total enrolments at the seven institutions, claiming more than one in five students. Individual institutional enrolments in health related programs range from 9% to 12% at SMU and NSCC, to 35% at Dalhousie (Figure 5.4).

Figure 5.4: Total Enrolments and Health Related Program Enrolments by Institution, NS, 2000-01



As Table 5.5 indicates, there has been little increase in overall enrolment in health programs between 1991 and 2001, with only occupational therapy and social work showing significant increases.

Table 5.5: Enrolment Growth for Selected Health Programs in NS, 1991-92, 2000-01 and 2001-02

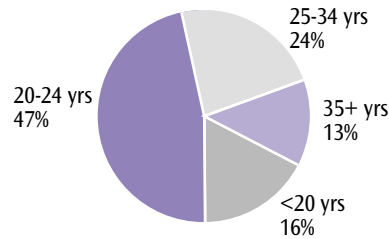
Program	1991-92 Enrolment	2000-01 Enrolment	% Average Annual Growth 91-92 to 00-01
Dental Hygiene	78	74	-0.5%
Dentistry	n/a	134	n/a
Licensed Practical Nursing	233	176	-3.8%
Occupational Therapy	99	140	4.3%
Pharmacy	259	255	0.1%
Medicine	341	348	0.2%
Physiotherapy	140	141	-0.2%
Registered Nursing	n/a	429	n/a
Social Work (B)	120	147	3.2%

Source: MPHEC, Dalhousie Registrar and NSCC

Age

Nearly two-thirds of the students in health related programs in public sector institutions were 24 years of age and under (Figure 5.5).

Figure 5.5: Age of Students Enroled in Health Related Programs in Public Sector Institutions, NS, 2000-01



While there has been no large shift in the age profile for post secondary students overall in Canada, this has not been the case for health professions in Nova Scotia. Table 5.6 shows enrolment by age category for selected health programs in Nova Scotia at two points in time, in 1991-92 and in 2001-02. About 45% of students enrolled in the social workers bachelors program in 2001-02 at Dalhousie were over 35 years of age, compared to 33% in 1991-92. As well, 55% of speech language pathology and audiology students in 2001-02 were over 25 years of age, compared to 36% a decade earlier. Medical students were also older, with 56% over 25 years in 2001-02, compared with 42% in 1991-92. Similarly, pharmacy, occupational therapy and physiotherapy had 26%, 28% and 30% of students 25 years or older in 2001-02, as compared to 11%, 15% and 19% respectively a decade earlier.

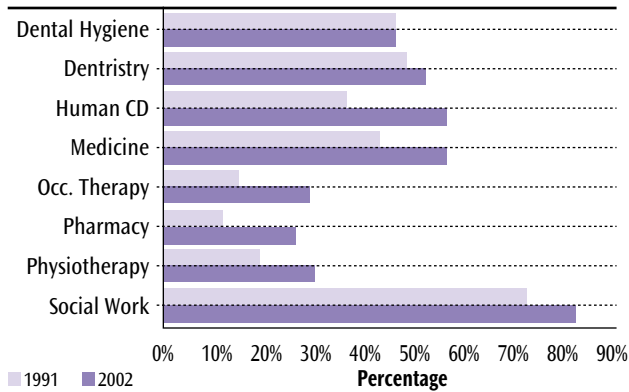
Table 5.6: Enrolments in Selected Health Programs, NS, 1991-92 and 2001-02

Program	<20 yrs		20 24 yrs		25 34 yrs		35+ yrs	
	91-92	01-02	91-92	01-02	91-92	01-02	91-92	01-02
Social Work (B)	—	—	28%	18%	39%	38%	33%	45%
Social Work (M)	—	—	2%	0%	32%	38%	66%	62%
Dentistry	—	—	52%	48%	47%	48%	2%	5%
Medicine	—	—	57%	44%	40%	53%	2%	3%
Pharmacy	15%	5%	73%	69%	10%	25%	1%	1%
S-L Path/Audio	—	—	64%	44%	33%	49%	3%	6%
Occupational Therapy	6%	1%	79%	72%	12%	26%	3%	2%
Physiotherapy	11%	2%	69%	68%	17%	28%	2%	2%
Dental Hygiene	3%	3%	51%	51%	37%	36%	9%	10%

Source: MPHEC; Dalhousie

As a further indication of the aging trend among students, all of the occupations shown in Figure 5.6 had a higher proportion of older students (25 years of age and over) enrolled in 2001-02 than in 1991-92 academic years. Part of the explanation for this may be related to the higher proportion of students entering health education and training programs in Nova Scotia who have pre-existing degrees.

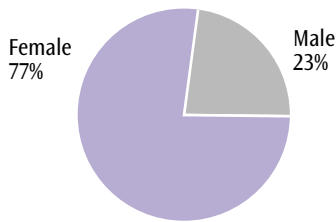
Figure 5.6: Age 25 Years and Older for Selected Health Programs, NS, 1991 and 2002



Sex

Reflecting the predominately female (86%) makeup of those already working in the health care field, enrolment in health related programs at Nova Scotia's post secondary education and training institutions was over 77% female (Figure 5.7).

Figure 5.7: Sex of Enrolments in Health Related Programs, Public Sector Institutions, NS, 2000-01



A number of programs have increased the proportion of females, as compared to the supply of the workforce (Table 5.7). That gap has helped to perpetuate feminization of the health industry, which has recently moved beyond the traditional female dominated occupations of nursing or dental hygienist to disciplines like medicine, dentistry and pharmacy.

Table 5.7: Female Proportion of Education Enrolments vs. Supply by Health Related Program, NS, 2001

Program	Education Proportion	Supply Proportion
Medicine	52%	31%
Dentristry	57%	25%
Psychology (Clinical)	74%	60%
Pharmacy	75%	65%

Increasing numbers of female graduates becomes a planning issue for health disciplines, especially as it relates to female participation and productivity within the labour force. Some recent research is indicating that practice patterns differ

significantly by age and by gender for healthcare providers. Based on today's gender mix within the Dalhousie Medical School, an additional enrolment of seven students would be required to maintain the same level of physician services (as measured by billing activity) within Nova Scotia as the predominantly male (64%) graduating class of 1991.

Geographic Origin

In addition to educating and training its own health care workers, Nova Scotia institutions have a significant regional role. The overall geographic origin for enrolments in these 90+ programs was 71% from Nova Scotia, and 87% overall from the Atlantic region (Figure 5.8).

Figure 5.8: Geographic Origin of Enrolments in Health Related Programs, NS Insitutions, 2000-01

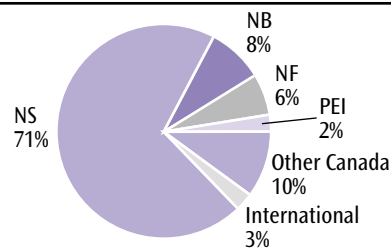


Table 5.8 indicates priority is given to the education and training of Atlantic students for most of the health programs offered in Nova Scotia. It is noteworthy that the psychology PhD intake from non-Atlantic provinces was at 44%. As well, the proportions of International enrolments were higher for medicine and dentistry.

Table 5.8: Place of Origin of Total Enrolments, 2000-01

Program	% NS	% Atl	% Other Can.	%Int
<i>Community Residential Worker</i>	100			
<i>Dental Assistant</i>	100			
<i>Licensed Practical Nurses</i>	100			
<i>Continuing Care</i>	99	100		
<i>Pharmacy Technology</i>	95	100		
<i>Denture Technology</i>	85	100		
<i>Dental Technology</i>	75	94	6	
Medical Laboratory Technology	100			
Social Work (Bachelor's)	93	98	1	1
Nursing (BN)	79	94	4	2
Respiratory Therapy	67	87	13	0
Health Services Admin (Master's)	66	79	19	2
Pharmacy	64	96	2	2
Social Work (Master's)	61	90	8	2
Dental Hygiene	54	92	7	1
Health Education (BSc)	54	70	24	6
Medicine	53	83	10	8
Occupational Therapy	45	92	8	0
Physiotherapy	45	98	1	1
Dentistry	41	82	7	11
Human Comm. Disorders	40	78	18	4
Psychology (PhD)	36	49	44	7
Disability Management	20	40	56	4

Italics represents NSCC Programs

5.3.4 Funding Post-Secondary Education

The cost of post-secondary education in Canada is shared. Governments provide core funding to colleges and universities while students pay tuition. In Nova Scotia, government funding for post secondary institutions comes primarily through block funding from the Department of Education (DOE), based upon a targeted formula developed in 1998 that utilized a three year (1994-97) weighted average mix of Full-Course-Equivalents (FCEs).

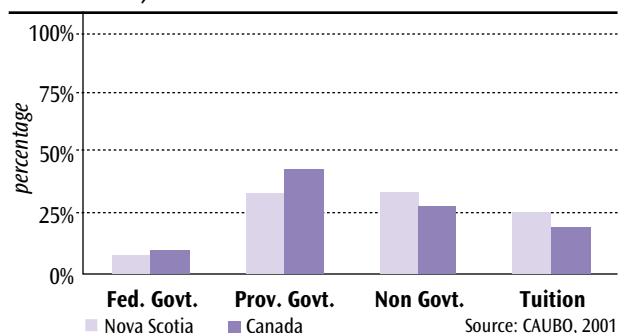
Core funding flows for the Maritime provinces are in accordance with the Regional Programs Agreement of the Maritime Provinces Higher Education Commission (MPHEC), typically based on the number of students enrolled from their province of origin. New Brunswick and Prince Edward Island annually have regional transfers based upon the number of seats for students originating from their province. These regional funding transfers are directed into a government general revenue account.

This differs from the arrangement for Newfoundland and Labrador, where Return for Service (RFS) agreements are negotiated with students, and separate funding is typically transferred directly to the educational institution.

5.3.4.1 Declining Government Funding

Over the last decade, overall government funding for post-secondary institutions in Canada has declined, even as enrolment has climbed. In 2001, the proportion of funding for Nova Scotia universities from government sources was somewhat disproportionate relative to the rest of Canada. As a result, the cost to students of a health education, or indeed any post secondary education, has increased significantly across the country (Figure 5.9).

Figure 5.9: University Funding Sources, Nova Scotia and Canada, 2001



This trend is most pronounced in Nova Scotia. In terms of provincial university operating grants per student, it ranked in last place among provinces. In fiscal 2002-03, tuition fees accounted for significantly more of university and college revenue in Nova Scotia (26.2%) than the national average (19.2%). At the same time, Table 5.9 shows government transfers have provided significantly less.

Table 5.9: University and College Revenues by Source, Canada and NS, 2002-03

	Tuition		% Tuition	Govt.	
	Revenue	Revenue		Revenue	% Govt.
Canada	\$22.71B	\$4.36B	19.2%	\$12.76B	56.2%
NS	\$758.5M	\$198.6M.	26.2%	\$342.5M	45.1%

Source: Canadian Statistics, July 2003

Over the past decade Nova Scotia tuition has increased 93%. In 2002-03, Nova Scotia's tuition fees (\$5,214) were 28% higher than the average tuition fees elsewhere in Canada (\$3,738).

5.3.4.2 Health Funding Increases Crowding out Education

Universities and colleges have consistently lost out in recent years to the health care industry in the competition for government funding, as shown in Table 5.10.

Table 5.10: Expenditures Nova Scotia, Health vs. Post-Secondary Education, 2000-04

	2000-01	2001-02	2002-03(f)	2003-04(e)	% Change 2000-03
Health	\$1,747 m.	\$1,838 m.	\$1,997 m.	\$2,111 m.	21%
Post Secondary	262 m.	266 m.	276 m.	277 m.	6%

Source: NS Dept. of Finance, budget documents

5.3.4.3 Universities Have Lion's Share of Public Funding in Nova Scotia

A characteristic of the post-secondary education and training system in Nova Scotia is the dominance of the university sector. Table 5.11 compares the allocation of post-secondary expenditures in Nova Scotia versus Canada. Historically, university expenditures in Canada represent about three quarters of total post secondary expenditures, and community college expenditures about 25%. This was not the case in Nova Scotia however, where a decade ago over 90% of post secondary expenditures were associated with universities. In recent years, Nova Scotia has moved closer to the national norm.

Table 5.11: Ratio of University to Community College Expenditures, Canada and NS, Selected Years

	Ratio per Year				
	1993-94	1994-95	1995-96	1996-97	1997-98
Nova Scotia	92/8	89/11	90/10	89/11	86/14
Canada	74/26	74/26	72/28	72/28	72/28

Source: Statistics Canada, Education in Canada 2000

The imbalance in spending between universities and community colleges in Nova Scotia is primarily because there are significantly more students enrolled in universities than other provinces. As Table 5.12 shows, Nova Scotia's full and part time university enrolment of 39.6 per 1,000 population is indeed the highest of

any province in Canada, and 25% higher than the next nearest province. However, it is also noteworthy that Nova Scotia had more students enrolled in community college programs in 1998-99 than three other provinces.

Table 7.7: Full-Time and Part-Time Post-Secondary Enrolment/1000 Population, by Province, 1998-99

Province	University	Community College
Newfoundland & Labrador	29.0	11.9
Prince Edward Island	20.9	14.3
Nova Scotia	39.6	7.8
New Brunswick	30.2	7.1
Quebec	31.6	23.6
Ontario	26.3	13.3
Manitoba	26.9	5.9
Saskatchewan	30.5	2.8
Alberta	24.9	16.8
British Columbia	19.1	21.6

Source: Statistics Canada, Education in Canada 2000

5.3.4.4 Government Funding for Health Related Programs in Nova Scotia

Approximately \$52 million was allocated by the Nova Scotia Department of Education (DOE) in 2000-01 to undergraduate and graduate health and health related programs. This represented about one quarter of the total university funding from the DOE to the six universities with health related programs. Supplementary targeted funding toward education of health professionals of an additional \$20+ million from the DOH meant that about one third of the public funding for universities in Nova Scotia was targeted at health related programs.

Dalhousie University had the highest proportion of funding directed at health related programs (Table 5.13). Of the \$99.3 million total operating grant allocated to Dalhousie from the DOE, approximately 45% of it was targeted funding for health related programs.

Table 5.13: DOE Formula Based Funding to Universities, NS, 2000-01

University	Total Funding	Total Health Related Funding	FTEs Funded Health Related	\$/FTE Health Related	FTEs Total	\$/FTE total
Acadia	\$21,035,260	\$1,469,984	379.0	\$3,878	3,957.1	\$5,316
Dalhousie University	\$99,314,896	\$44,950,916	2,915.9	\$15,416	10,843.6	\$9,159
MSVU	\$12,593,071	\$1,148,395	334.1	\$3,437	2,690.7	\$4,680
Saint Mary's	\$19,904,403	\$1,795,177	546.8	\$3,283	5,041.8	\$3,948
St. FX	\$17,332,097	\$2,380,627	548.5	\$4,340	3,639.5	\$4,762
UCCB	\$13,953,681	\$1,054,613	319.7	\$3,299	3,086.6	\$4,521
Total DOE	\$199,708,221	\$52,344,255	5,044.0	\$10,378	32,105.0	\$6,220

Source: NS Department of Education, 2001

Note: Other schools included in the Total DOE \$\$ and FTEs (AST, NSAC, NSCAD, UKC, USA)

With funding for more than 5,000 full time equivalents for health and health related programs, DOE funding represented nearly \$10,000 per FTE. In comparison, with total enrolments of about 30,000 FTEs, DOE funding represents approximately \$6,220 per FTE over all program areas. On the basis of five FTEs representing an FTE, table 5.13 indicates that, with the exception of Dalhousie, universities received more funding for non-health related programs than for health related programs. This is likely related to the funding of a higher proportion of undergraduate health related FTEs at these other universities, relative to the makeup of their total program funding.

Based upon the weighted funding formula, graduate health related programs in Nova Scotia require more funding per FTE than undergraduate programs, and Dalhousie accounts the overwhelming majority of the graduate health programs in Nova Scotia. As an example, dentistry programs received 10 times more funding per FTE than undergraduate programs such as psychology and gerontology. While 45% of Dalhousie's health related FTEs come from graduate programs, approximately two-thirds of its government funding for health was for its graduate programs.

New health related programs introduced in more recent years and expansions to existing programs have been funded through other sources. In addition, the DOH contributes targeted funding of more than \$20 million toward the education and training of selected health programs, including medicine, nursing, and the health sciences programs at the QEII.

NSCC received approximately \$64 million in public funding (86% Provincial and 14% Federal Funding) in 2000-01. Approximately \$12.3 million was spent in 2000-01 on certificate and diploma programs in the NSCCs School of Health and Human Services.

5.3.4.5 Funding Model not Responsive to Change

The current funding for post secondary education in Nova Scotia is derived from an outdated funding model, based upon a weighted average of 1994-1997 FCEs. Furthermore, there is no formal accountability framework, to monitor how funds are allocated and spent on health discipline programs within each of the educational institutions.

The lack of cash flow for working capital and startup, coupled with a time lag in program funding, makes it difficult to transition to any program expansion model. Recent examples of successful program expansion occurring without direct DOEW funding support include: Dalhousie's introduction of a Masters program in Occupational Therapy; Social Work's expansion of its Distance Education Program; and Pharmacy's \$1 million investment to expand its existing infrastructure to allow an intake of up to 35% more seats. It speaks well of the innovation and effort of the educational institutions to successfully progress despite the deficiencies associated with the funding formula and its flow.

5.3.5 Clinical Placement and Preceptor Capacity

Students in health programs spend a lot of time in the classroom. For some, up to 50% of their program consists of clinical placements, which are often supervised on a voluntary basis by clinical professionals or preceptors. The logistics of clinical placements in Nova Scotia are the responsibility of each department. Practices and resources vary considerably by health discipline program. Dalhousie, the QEII, professional associations and employers all assume various coordination roles, from volunteer to paid, depending upon the profession.

A fundamental component for many of the Atlantic and Maritime health programs involves clinical placements outside of the province. Students apply their learning in various care settings within the Atlantic and/or broader geographic region. Dalhousie has affiliation and clinical agreements with provinces in the Atlantic region and beyond.

Clinical placements also vary geographically by year of program. While overall 22% of Occupational Therapy's clinical placements were placed outside of the Atlantic region in 2000-01, more than 80% of the third year clinical placements were outside of the Atlantic region. Many of the health programs, such as Pharmacy, tended to have clinical placement distribution proportionate to the province of origin of enrolments (68% in Nova Scotia in 2000-01). Most of the provincial health programs at universities and community colleges, such as nursing programs (BScN and LPN) have most, if not all, of their clinical placements in Nova Scotia.

Clinical education is increasingly being identified as a barrier to increasing enrolments in certain programs. Key informant feedback indicated there was insufficient resource (HR/financial) capacity, inadequate coordination of logistical arrangements, and

a lack of infrastructure in the field to meet the existing and future demand for clinical placements.

Dietetics, occupational therapy, dental hygiene and nursing all indicated availability of clinical placement sites or preceptors was becoming a bottleneck in sustaining or expanding programs. In recognition of this issue, the DOH recently funded an initiative to examine the current and future role of clinical education for selected health disciplines.

Competition exists for limited clinical placement and preceptor resources, especially within the hospital setting (nursing, medical students, and paramedics in the ER setting). Other professions such as pharmacy, physiotherapy, nursing, dietitians, audiology and speech language pathology indicated clinical placement site difficulties, some noting reductions of 30% to 50% in placements at the QEII because of a lack of preceptor supervisory time.

Another challenge facing clinical placements is aligning theory so it can be applied clinically in the field. The Medical School at Dalhousie indicated a catch-22 situation for their clinical placements. They indicated they teach to the team philosophy concept, but students cannot apply their learning in the field, as they are often placed in silo practice environments. Another concern raised by one of the rehabilitation disciplines was the tendency for some employers to continue with the apprenticeship model, whereby the clinical placement was viewed as an extra pair of hands, rather than being given the opportunity for mentorship and application of knowledge into learning.

Some health occupations requiring placement in multiple practice settings (e.g. dietitians in community, hospital and LTC) indicated that the logistics of arranging placements has become very time consuming. As well, occupations requiring placement in multiple sectors of employment (e.g. health and education sectors) indicated there was not enough time to do justice to both health settings and other industry settings.

5.3.6 Recruiting for Health Discipline Programs in Nova Scotia

Nova Scotia has no overall, coordinated student recruitment strategy for its health discipline programs. For the most part, university recruitment responsibilities are de-centralized to department heads for each of the health disciplines, resulting in recruitment practices that vary considerably. Where centralized recruitment initiatives existed, there were common issues, such as inadequate representation at recruitment fairs. Each school is typically allowed only two representatives at recruitment fairs, irrespective of the volume of their program offerings or the size of their student bodies.

There was a lack of agreement among key informants about the target market for recruitment efforts. For instance, should it be high school students, first year students and/or undergraduates as per stated program entry requirements, or post-graduate degree students? With the continued inflation of entry requirements, an

unstated consensus may be emerging around the latter preference.

Regarding the recruitment of students from the Atlantic provinces into programs with an Atlantic mandate, there were no standardized arrangements between universities and provincial governments. One department representative indicated it was the individual province's decision, while another wanted significant involvement in the selection process. As well, it was not clear whether out-of-province individuals independently applying (i.e. those not wanting to enlist in a return-for-service program), were considered part of the total quota allotment for that province.

Many of the health discipline programs at Dalhousie have entry-level requirements of one year of university (e.g. Pharmacy, Physiotherapy, Occupational Therapy, Kinesiology). However, there are no inter-provincial agreements on who is accountable, both locally and regionally, to actively recruit from the pool outside of Dalhousie's first year students.

There is no accountability framework with performance measures to ensure that neighboring provinces in the region can meet their health education and training needs, nor is there a mechanism for providing provincial authorities with feedback on the cause of anticipated enrolment shortfalls. Such a process might, for example, allow provinces to alleviate enrolment shortages through a better recruitment effort at home.

5.3.6.1 Applicant to Enrolment Ratios

An important recruitment measure reflecting potential interest in health discipline programs is the ratio of applicants to enrolments. Looking ahead, Table 5.14 illustrates applicant to enrolment ratios for some university and community college health discipline programs. These ratios are indicators of applicant interest and enrolment quality in education programs. Some of the Atlantic and Maritime programs have experienced declining applicant-to-enrolment ratios in recent years.

Table 5.14: Applicant to Enrolment Ratios for Selected Health Programs

Program	Applicant to Enrolment Ratios		% Change 99-00 to 01-02
	1999-2000	2001-2002	
Dental Hygiene	2.4	2.2	-9%
Dentistry	7.2	4.4	-39%
Health Services Admin (Master)	1.9	2.1	11%
Human Comm. Disorders	6.5	5.6	-14%
Med Lab Tech (Post Diploma)	n/a	1.5	n/a
Medicine	6.2	4.3	-31%
Nursing	2.1	2.2	5%
Occupational Therapy	2.9	1.7	-41%
Pharmacy	2.3	4.0	74%
Physiotherapy	5.4	4.2	-22%
Psychology (PhD)	12.3	13	6%
Respiratory Therapy	3.8	2.9	-24%
Social Work (Bach)	3.3	2.5	-24%

Source: Dalhousie University

In most instances where applicant to enrolment ratios have improved, significant recruitment effort has occurred. For example, the Dalhousie School of Pharmacy undertook a recruitment drive as part of their program expansion, as well as to revitalize student interest in their profession. In turn, in 2001-2002, the number of pharmacy applicants increased by 156%, to 348 applicants, up from 136 applicants in 2000-2001.

Another example of successful recruitment effort occurred within the occupational therapy program, which experienced a 40% decline in applicants over a three-year period from 1999-00 to 2001-02. A program recruitment effort resulted in a pool of applicants for 2002-2003 that was more than double the previous year.

5.3.6.2 Recruiting New Graduates into the Health Workforce

One of the most significant challenges is recruiting new graduates into the local workforce. In 2001, 27% of occupational therapy graduates chose to license to practice in Nova Scotia, from a graduating class made up of 48% of students of Nova Scotia origin. In 2001, about 54% of nursing graduates registered to practice in Nova Scotia, from a graduating class that was 82% of Nova Scotia origin.

A recent survey of 2001 Dalhousie pharmacy graduates indicated that one year after graduation, 59% were employed in Atlantic Canada, from a graduating class comprised of 92% of Atlantic Canadians. About 19% were employed in Ontario, 5% elsewhere and the remaining 17% were pursuing further education. However, with only 4 students enrolled in the pharmacy residency program in 2001-02, this suggested that some of the remaining seven students that were pursuing further education were likely studying outside of the field of pharmacy.

Suggested reasons graduates exiting included:

- Lack of local employment opportunities (Occupational Therapy)
- Wage disparity between provinces (Pharmacy)
- Lack of local full time positions (Nursing)

Economic, lifestyle, labour market, demographic and cultural changes are resulting in rehabilitation and social sciences professions such as audiology, speech language pathology, psychology, occupational therapy, physiotherapy, pharmacy, etc trending more and more toward private practice and industries outside of health services.

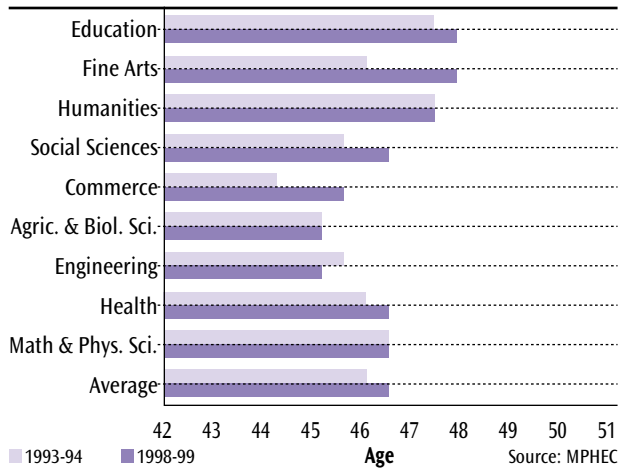
5.3.6.3 Recruiting Faculty

Recruiting and retaining faculty was an expressed concern for some professions such as dentistry, speech language pathology and audiology, pharmacy and medicine. In several cases, educators have been brought in from other provinces and the United States to cover the delivery of programs. For others, a barrier to attracting faculty was said to be the disparity in compensation between industry and educational institutions, especially for health occupations working in the private sector.

A concern for some schools is the need to recruit replacements for a large number of pending faculty retirements. More than 80% of faculty in Canadian universities are 40 years of age or older, and one

third are expected to retire in the coming decade. In the Maritime provinces almost half of all faculty (47%) were 50 years of age or older during the 1998-99 academic year. The following chart shows the average age for full time faculty by discipline in the Maritime provinces, indicating faculty teaching health programs were on average, 48 years (Figure 5.10).

Figure 5.10: Average Age of Full-Time Faculty by Principal Subject Taught, Maritime Provinces, 1993-94 and 1998-99



More specifically 41% of the faculty at the Dalhousie School of Medicine was over 50 years. Nearly one-half of these impending retirees are appointed on a limited term basis, while tenure track and CAPR track appointees are anticipated to account for 21% and 29% of retirees, respectively.⁹⁰ Broken down by employment status, 51% of full time medical faculty and 31% of part time faculty were 50 years of age or older.

5.3.7 Continuing Education

Life long learning is important to health professionals and to the public they serve. At present, some health professionals participate in continuing education development opportunities through membership in an organization, while others are required by law to participate as part of their license renewal.

The delivery and coordination of continuing education varies between educational, regulatory and professional associations and industry and employers. Various occupations have mandatory continuing education specified in both legislation and regulations. Other occupations, such as medicine, have not formally written them into regulations, but their legislation specifies they are at the discretion of the regulatory entity. Still other occupations such as medical radiation therapists do not have continuing education specified in either legislation or regulation.

Even with the availability of continuing education, existing workforce shortages make it difficult for individuals to take part, as there is typically no additional staff or limited financial resources to pay expenses or cover the workload of participating employees. Health care employers are expressing concern that lifelong learning requires orientation, continuing education, and professional development, all of which are priorities. Financial support for these areas, however, is currently outside the scope of HRDCs funding mandate.

Career advancement and career laddering opportunities were noticeably nominal or absent for many of the health occupations. Speech language and audiology noted that in Nova Scotia and elsewhere, almost everyone works in the field, with fewer than 10% in management positions. Other occupations, such as dietitians, indicated limited management career path mobility within the existing environment.

90. CAPR Track stands for Continuing Appointment and Periodic Review. For non-union faculty in the CDHA, i.e. clinical faculty, this appointment type replaced Tenure Track for all new faculty five years ago.

6.0 WORKING IN HEALTH CARE

6.1 THE 'QUALITY' OF WORK LIFE IN HEALTHCARE

Reports of human resource shortages in the provincial health care system are becoming increasingly common. As national and international competition for scarce health care resources intensifies, there is an increasing focus on determining the most effective recruitment and retention strategies. To date, the most popular or preferred strategies used to address human resource shortages have been to 'produce more.' This is usually accomplished by increasing enrolments in education and training programs and by recruiting more workers into the province from elsewhere. While these strategies are essential components of HHR planning efforts, they should not be the sole focus.

The consensus emerging in the HHR literature suggests a high quality work environment, coupled with financial incentives, is equally important to attract and retain motivated and productive health care workers. Individuals with weak employment relationships have higher rates of turnover, higher absenteeism rates, lower workplace morale, and lack of skill development and use.⁹¹ This can, and does, have a negative impact on the productive use of available resources, and can even impact patient health.⁹²

Work environment characteristics are especially important considering changes in service delivery underway in Nova Scotia. The *Report of the Nova Scotia Advisory Committee on Primary Health Care Renewal* paints a picture of health care service delivery that emphasizes collaborative working relationships and evolving roles among health professionals. This will require a work environment that is flexible, adaptable to change and encourages innovation.

Figure 6.1: Declining and Emerging Workplaces

Declining Workplace	Emerging Workplace
Bureaucratic workplace	Flexible Workplace
Multi-layered silos, rigid hierarchy	Flatter, fluid organizational structure
Top-down chain of command	Employee participation in decision-making, Shared information
Specialized division of labour	Extensive work teams
Driven by rules and regulations	Delegated responsibility
Training	Continuous learning
Vertical career mobility	Horizontal and spiral career paths
Work environment issues not important	Healthy, supportive work environment

Source: Derived from G. Lowe, *Employer of Choice: Workplace Innovation in Government*. CPRN Synthesis Report, 2001.

91. G. Lowe and G Schellendberg, What's a Good Job? The Importance of Employment Relationships. CPRN Research Report, 2001.

92. A summary of literature outlining the impact of nurse staffing decisions is outlined by O'Brien-Pallas, L., Thomson, D., Alkinson, C., and Bruce, S. The Economic Impact of Nurse Staffing Decisions: Time to Turn Down Another Road? *Hospital Quarterly*, Spring 2001. Volume 4 (1). Pp. 42 - 50.

It is within this context that the work life of health care workers in Nova Scotia should be examined. The following information is intended to highlight some of the major employment-related issues and trends, to enable a better understanding of Nova Scotia's health workforce and the identification of possible priorities for future HHR planning.

6.1.1 Defining and Measuring Quality of Working Life in Health Care

Most individuals everywhere care about being *valued* and, having control over their work and having greater flexibility in the workplace. Consider the following top 10 job characteristics which Canadian workers consider, in rank order of importance, to be 'very important' in a job:⁹³

1. Treats them with respect
2. Provides interesting work
3. Encourages good communications among co-workers
4. Gives a feeling of accomplishment
5. Allows a balance between work and family
6. Develops skills and abilities and allows a chance to develop professionally
7. Friendly and helpful coworkers
8. Pays well
9. Good job security
10. Career advancement

Interestingly, tangible issues such as compensation (#8) and job security (#9) were ranked well below dimensions of work such as respect (#1), interesting work (#2) and good communication (#3).

The health care sector faces particular challenges in this regard. A Canadian Policy Research Network *Changing Employment Relationships Study* noted that health professionals were least likely of all occupations surveyed to rate their work environment as 'healthy.'⁹⁴ Furthermore, while health occupations reported the highest commitment to the type of work they do, they reported the lowest commitment to their employers.⁹⁵ Also, occupations in health were less likely to rate their job as allowing them to balance work and family or personal life.⁹⁶

Given the importance of work life quality to the overall operation of the health care system, it is important to collect and report meaningful, reliable and standardized measures of work life quality. Unfortunately, most information on quality of work life in Nova Scotia is anecdotal. There are currently no standardized measures of work life quality that can be compared across employment settings, occupational groups and geographic areas.

There is, however, work underway in this area. The Canadian Council on Health Services Accreditation (CCHSA) includes work life as one of four dimensions of quality in its Achieving

93. Paraphrased from Lowe et. al. What' a Good Job ? The Importance of Employment Relationships. CPRN Research Report, 2001.

94. CPRN-Ekos Changing Employment Relationships Survey 2000.

95. Ibid

96. Ibid

Improved Measurement (AIM) accreditation program, a system used to accredit health services organizations in Canada, to help organizations evaluate the quality of care they provide. AIM offers the following description of worklife quality:

*The organization provides a work atmosphere conducive to performance excellence, full participation, personal/professional and organizational growth, health, well-being, and satisfaction.*⁹⁷

Descriptors of good work life include:

- Open communication;
- Role clarity;
- Participation in decision making;
- A learning environment; and
- Individual staff member's well being.

Provincially, the College of Registered Nurses of Nova Scotia has implemented a *Practice Environment Collaboration Program (PECP)*, which provides a mechanism for organizations to measure and improve the practice environment and worklife for nurses. The PECP follows a process in which organizations assess the degree to which the following practice attributes are present and support nursing practice: care delivery process, communications systems, facilities and equipment, leadership, organizational supports, professional development systems and response to external demands.

In 2002, the Canadian Nurses Association convened a national workshop to develop quality of worklife indicators for nurses in Canada. The workshop recommended a set of eight indicators of worklife for nurses in Canada, and that these indicators be incorporated into the CCHSA's 2004 AIM accreditation program (Table 6.1):

Table 6.1: Possible quality of worklife indicators

Indicator	Definition
Span of control	Average number of direct reports for each nursing supervisor
Leadership	Corporate nursing leader at senior level with budget line responsibility
Overtime hours	Percent of nursing staff earned hours that are overtime hours
Full-time/part-time/casual ratios	Percent of total nursing staff earned hours that are full-time, part-time and casual, reported annually
Autonomy/scopes of practise	Percent of nurses reporting in a staff survey that they have adequate control over their professional practice
Professional development opportunities	Percent of nurses participating in in-service training session and/or off-site education and training programs, with the average number of hours for each type of session, reported annually
Absenteeism	Average number of days absent per nurse or absenteeism as per cent of total earned hours
Grievance	Total number of unresolved grievances

Source: CNA Quality of Worklife Indicators Workshop Report.

While these indicators were derived for nursing practice in Canada, they are sufficiently broad to apply to other occupations as well. Current data availability for the health workforce in Nova Scotia allowed for the reporting on three of the former eight indicators at the provincial level:

- Absenteeism;
- Overtime; and
- Full time/part time/casual ratios (Employment Status).

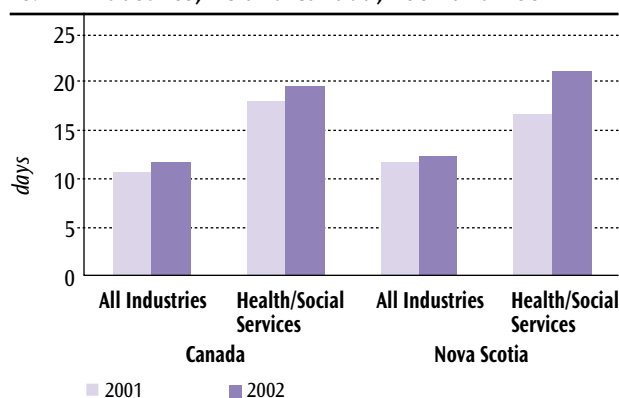
6.2 THE 'HEALTH' OF NOVA SCOTIA'S HEALTH WORKFORCE

6.2.1 Absenteeism – Labour Force Survey

People working in health care services are more likely to miss work than those employed in other industry sectors. According to the Statistics Canada Labour Force Survey, in 2002 health industry employees in Nova Scotia lost, on average, 20.7 days from work because of: illness and disability, maternity leave or for other personal reasons. This was 60% higher than the 12.9 days lost on average for people working in all industries in the province. It was also 1.5 days higher than the 19.2 days averaged by the Canadian health workforce as a whole (Figure 6.2).

97. Canadian Council on health Services Accreditation. (2002). The Dimensions of Quality: CCHSA's Definition of Quality. Ottawa, p.4/ As reported in Canadian Nurses Association "Quality of Worklife Indicators for Nurses in Canada. Workshop Report. To: Canadian Council on Health Services Accreditation. By: Graham S. Lowe. University of Alberta. 3 June 2002.

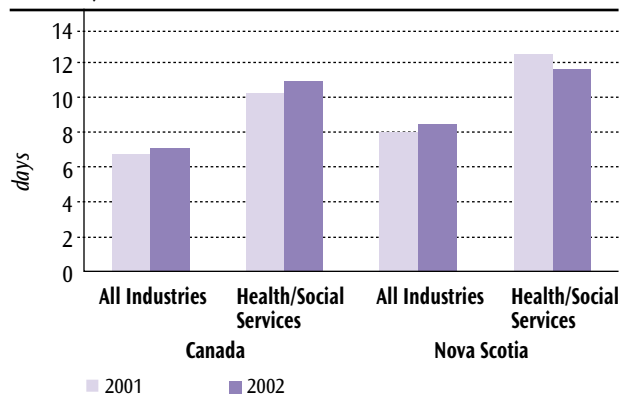
Figure 6.2: Days Lost Annually, Health/Social Services vs. All Industries, NS and Canada, 2001 and 2002



6.2.1.1 Time lost to Illness and Disability

People who work in health care in Canada and Nova Scotia are more likely to be absent from work because of illness or disability than workers in other industry sectors. In 2002, Canadian health industry workers lost an average of 11.1 days of work because of illness or injury, compared with 7.2 days for the Canadian workforce as a whole (Figure 6.3).

Figure 6.3: Days Lost Annually Due to Illness/Disability, Health/Social Services vs. All Industries, NS and Canada, 2001 and 2002



As Table 6.2 indicates, the health industry in Nova Scotia loses on average, 3.3 more days for illness and injury than other industries. Nova Scotia health care workers lost 11.9 days from work due to illness or disability, which was 38% higher than the 8.6 days lost in all industries.

Another key difference between health and other industries is the higher number of days health industry workers lost due to maternity leave. Because of a high proportion of females employed in the health industry (86%), as compared to other industries (55%), the average days lost due to maternity leave was considerably higher among health care workers (7 days) than among workers in all industry as a whole (2.7 days).

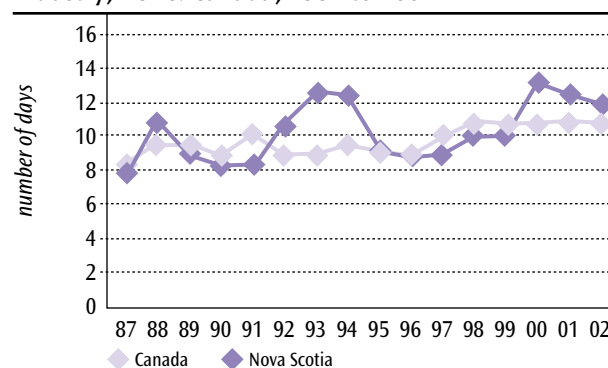
Table 6.2: Average Days Lost per Full Time Health Care Employee vs. All Industries, NS, 2002

	NS health Industry		NS All Industries	
	Days lost	% of time lost	Days lost	% of time lost
Illness/disability	11.9	57.5%	8.6	66.7%
Maternity	7.0	33.8%	2.7	20.9%
Other Personal	1.8	8.7%	1.6	12.4%
Total	20.7	100.0%	12.9	100.0%

The average of 11.9 days lost to illness or disability works out to just about one day a month per employee. Based on a health industry workforce of 52,900, if days lost due to illness and disability in health care were reduced to the rate of 8.6 days for all Nova Scotia workers, it would be like having an additional 671 more health workers on the job in this Province.

Days lost to illness or disability by Nova Scotian health workers in 2002 was just slightly higher (11.9 days) than the national rate (11.1 days). Between 1987 and 2002, the average number of days lost to illness and disability was higher in Nova Scotia's health workforce in 9 of the 16 years. Figure 6.4 shows, the national and Nova Scotia rates have been converging the last two years.

Figure 6.4: Days Lost Due to Illness/Disability, Health Industry, NS vs. Canada, 1987 to 2002



Female health care workers in Nova Scotia have a higher rate of absenteeism due to illness or disability than their male counterparts. As the Table 6.3 below shows, the average for females of 13.0 days lost (excluding maternity leave) was more than double that of males – a differential far greater than that which existed in industry as a whole in Nova Scotia.

Table 6.3: Average Days Lost for Illness/Disability per Full-Time Employee by Gender, Industry, NS, 2002

	NS health Industry	NS All Industries
Female	13.0 days	9.8 days
Male	6.2 days	7.7 days
Total	11.9 days	8.6 days

Source: Statistics Canada 2002 Labour Force Survey

Female health workers in Nova Scotia missed work because of sickness or injury one third (33%) more than women in the rest of the workforce, while their male health counterparts missed work 20% less time than colleagues working in other industry settings. Nationally, female health workers also missed more time than males, but the gap was less pronounced, as Table 6.4 shows.

The female-to-male ratio for time lost was 2.1 to one in Nova Scotia in 2002, compared with 1.5 to one in Canada as a whole, a pattern that has been consistent over the years.

Table 6.4: Average Days Lost Annually to Illness & Disability by Sex, Health Industry, NS & Canada, Selected Years

	1992	1999	2002
Nova Scotia Females	11.3 days	10.9 days	13.0 days
Nova Scotia Males	7.5 days	5.5 days	6.2 days
Nova Scotia Female/Male Ratio	1.5 to 1	2.0 to 1	2.1 to 1
Canada Females	9.6 days	11.2 days	11.8 days
Canada Males	7.5 days	9.1 days	7.9 days
Canada Female/Male Ratio	1.3 to 1	1.2 to 1	1.5 to 1

Source: Statistics Canada 2002 Labour Force Survey

6.2.2 Workplace Injuries – Worker’s Compensation Board

Among large industries, Canada’s health and social services workers had the fourth highest rate of workplace injuries resulting in lost time in 1998. This reflects the fact that health care workers, especially nurses, are vulnerable to musculoskeletal injuries from lifting and moving patients. They may also be subject to other workplace hazards such as accidental needlestick injuries, infection, illness, stress and physical and verbal abuse.⁹⁸

Consistent with the national picture, construction, manufacturing and transportation all had higher injury rates than the health sector in Nova Scotia. But with the addition of fishing and forestry as major industries in Nova Scotia, the health sector in Nova Scotia ranked throughout the 1990s as having just the sixth or seventh highest injury rate among 15 major industry sectors.⁹⁹

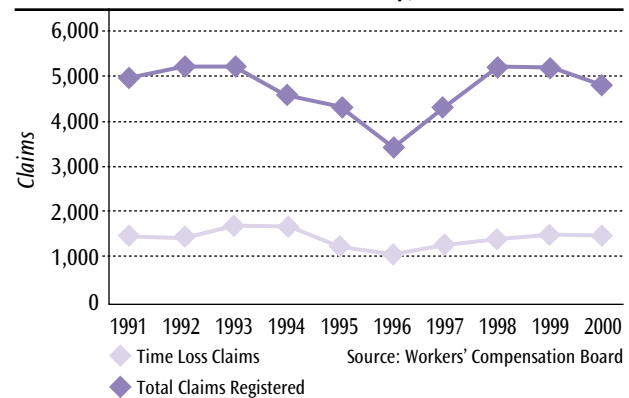
The Statistics Canada Labour Force survey does not break down time lost to illness versus time lost to disability. However, a reasonable approximation of the impact of workplace injuries on health industry workers can be made by studying data from the Workers’ Compensation Board (WCB).

In 2000, there were approximately 38,000 health care workers covered under the *Workers’ Compensation Act* in Nova Scotia, representing about 14.2% of the total workforce covered by the Act. The WCB registered 4,855 claims for health care workers in

2000. These represented 14% of all claims registered, which was approximately proportional to the health workers’ share of the overall insured workforce. However, 30% of the claims registered by health workers were time-loss claims,¹⁰⁰ representing 16% of all time-loss claims, a slightly disproportionate share of time-loss claims paid by the WCB in 2000.

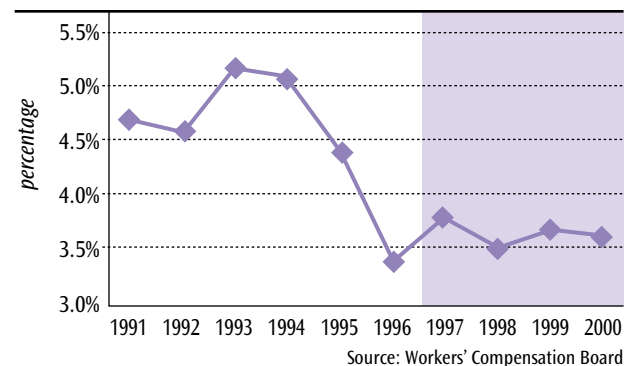
As Figure 6.5 shows, registered claims and time-loss claims followed a similar pattern during the 1990s, falling from 1993 to 1996, then beginning a steady rise in 1997. By 2000, both total claims registered and time-loss claims were at approximately the same levels as in 1991.

Figure 6.5: Claims Registered and Time Loss Claims in Health And Social Services Industry, 1991-2000



However, there has been a significant drop in another indicator, the *time-loss injury rate*. This is the proportion of time-loss claims per insured worker. Figure 6.6 shows the injury rate of time-loss claims in the health care industry has declined since the early 1990’s, and has leveled off since 1997. In other words, while the number of time-loss claims in 2000 was at similar levels as in 1991, the rate of injury per insured worker was much lower in 2000 (3.6%) than in the early to mid 90s (5.2% in 1993).

Figure 6.6: Time-Loss Claim Injury Frequency in Health/Social Services Sector



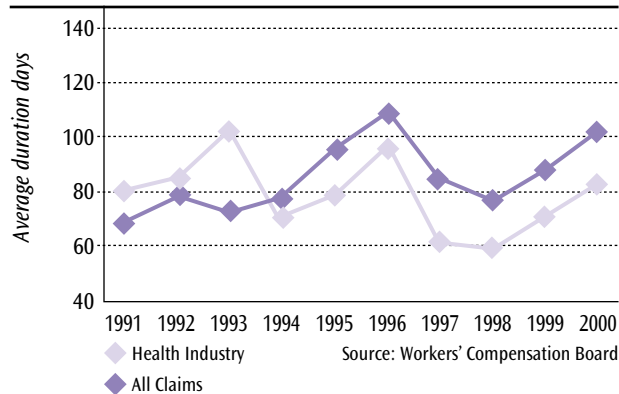
98. "Canadian Institute for Health Information "The Health of Health Care Workers," p.87
 99. NS Workers Compensation Review Committee, Final Report, 2002, p.329

100. For purposes of this analysis, a time-loss was considered to be any claim registered in the given year which received a short term disability payment during the year, or during the first two months of the following year.

6.2.2.1 Claim Duration

In 2000, the average duration¹⁰¹ of claims in the health/social services industry was 82.9 days. This was 23% less than the average duration of 102.2 days for claims in all industries, a consistent pattern since 1994. (Figure 6.7).

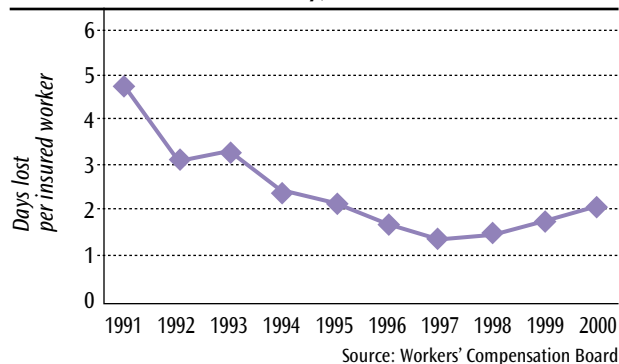
Figure 6.7: Average Claim Duration, Health Industry vs. All Claims, 1991-2000



Although the average duration in the health industry has recently been lower than the average for all industries, it has nonetheless, increased. From 1997-2000, the average claim duration for the health services sector increased from 59.8 to 82.9 days (a 39% increase).

The total number of days lost provides a sense of time lost from work due to workplace injuries. In 2000, there was an estimated 84,420 total days lost in the health industry.¹⁰² This represented approximately 2.2 days lost for every insured worker in the health industry in Nova Scotia. Figure 6.8 illustrates that the total days lost per insured worker in 2000 (2.2 days) was less than one-half that of 1991 levels (4.8 days).

Figure 6.8: Days Lost per Insured Worker in Health and Social Services Industry, 1991-2000



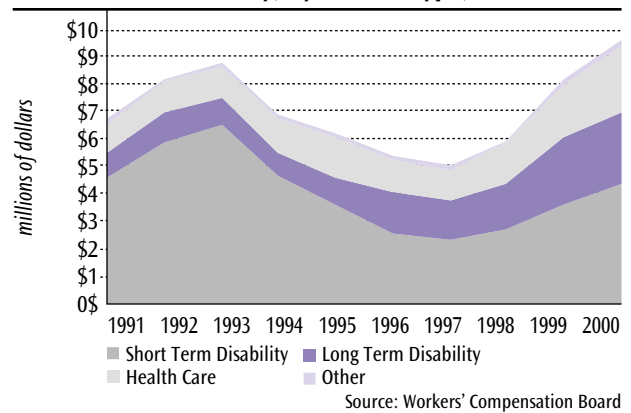
6.2.2.2 Benefit Payments

In 2000, there was \$9,570,881 paid in total compensation and services to injured workers in the health and social services industry. Short-term disability benefits represented the highest

101. For the purposes of this analysis average duration was calculated based on claims that ended in a given year (claims which received their last payment in the given year were used for that year's calculation).

102. Calculated based on total 'compensable weeks' of benefits in 2000 multiplied by 5 days.

Figure 6.9: Total Benefit Payments in the Health and Social Services Industry, by Benefit Type, 1991-2000



proportion of total benefit payments (46%), followed by long term disability benefits (28%), health care services (24%), rehabilitation services (1.8%) and survivor benefits (0.3%).

Figure 6.9 illustrates total benefit payments in the health and social services industry from 1991-2000. Total benefit payments declined from \$8.9 million in 1993 to \$5.0 million in 1997 (44% decline). Since 1997 total claim payments have increased steadily, going from \$4,998,000 in 1997 to \$9,570,000 (a 96% increase) in 2000.

6.2.2.3 Claims by Occupation

The WCB indicated that details on claim information at the occupational level should be used with caution. Information on the occupation of injured workers is not a required field in the WCBs system for claim payment purposes. Another limitation of the WCB data is that the coding of classifications for nursing occupations, did not accurately distinguish registered nurses from licensed practical nurses. Therefore, the WCB information presented represents the aggregate of these two nursing occupations.

Bearing in mind these limitations, Table 6.5 summarizes the data provided by the WCB, based on claim payments made in 2000. This information is based on all claim payments made in 2000, regardless of the claim open date. For the purposes of this analysis "Nurse Graduate" and "Nursing/therapy/related" were included as 'nurses'. Nurses, the largest component in the health care workforce, accounted for the largest proportion of claims and payments made in 2000, with 76% of claims and 79% of total payments.

Table 6.5: Percentage of Claim Payments in 2000, by Occupation

Occupation	Claims %	Payments %
Nurses	76.2%	78.5%
Occupation Medicine	8.8%	7.3%
Nursing Assistants	6.7%	9.4%
Dietitians/Nutritionists	3.2%	2.2%
Medical Lab. Techs.	2.9%	0.3%
Social Workers	1.5%	1.4%
Other	10.8%	0.8%

Sprains and strains were by far the most common type of injury in the health and social services industry. In 2000, 43% of total claims and 66% of total payments made on claims were for sprain or strain injuries.

6.2.2.4 Claim Payments by Type of Employer

The WCB classifies employers using Statistics Canada's Standard Industrial Classification (SIC) codes. Table 6.6 indicates 42% of the total claim payments in 2000 were for injured workers employed in nursing homes. This percentage is high considering only about 20% of health care workers are employed in nursing homes. Hospitals were the next highest at 33%, followed by home care with 15% of the total.

Table 6.6: Total Claim Payments for Injured Workers by Employer Type, NS, 2000

Type of Employer	% of Payments
Nursing Homes	42%
Hospitals	34%
Home Care Services	15%
Ambulance Services	3%
Homes for Mentally Handicapped/Other Disabled	2%
Other	5%
Total	100%

6.2.3 Workplace Sick Time

The Labour Force Survey focuses on the entire health services industry. It does not break down data by specific occupation or by public or private provider, nor does it tell us whether days were lost because of illness or injury. To get a more comprehensive picture of the health of the health care workforce additional field work was carried out, and primary and secondary data were collected from the Nova Scotia Department of Health (DOH), the Department of Community Services (DCS), the District Health Authorities (DHAs), long term care nursing home (LTC) facilities, home care and home support agencies (HC/HS), residential care facilities (RCFs), community based options (CBOs) and other sources.

6.2.3.1 Sick Time- Acute Care

As we have seen, in 2000 the WCB paid out nearly \$9.6 million in compensation to injured workers in the health and social services industry. However, most absences from work, especially short-term ones, do not result in a WCB claim. Instead, the costs are recorded on employers' books as sick pay. The nine DHAs and the IWK Health Centre, which between them employ close to 40% of Nova Scotia's total health workforce, paid out the equivalent of over \$19 million in sick pay in 2000-01 to health care workers in the acute care sector alone.

Sick pay reported by DHAs in 2000-01 amounted to 3.7% of earned compensation. The proportions ranged from a low of 2.8% in DHA 8 to 4.6% at the IWK (Table 6.7).

Table 6.7: Sick Pay Percentage and Cost by DHA, 2000-01

District	Percentage	Pro-rated to Total Acute
1	3.0%	\$794,729
2	3.5%	\$1,041,123
3*	3.2%	\$738,132
4	3.0%	\$649,085
5	2.9%	\$557,313
6	3.0%	\$667,731
7	3.5%	\$718,813
8	2.8%	\$2,252,949
9	4.1%	\$9,870,895
IWK	4.6%	\$2,491,411
Total	3.7%	\$19,782,181

* Derived estimate

Analysis of data from the DHAs and other sources indicated that in 2000-01, sick pay disbursed to 26 health occupational groups in Nova Scotia's acute care sector totaled \$15,369,628, amounting to 3.8% of the \$407,856,261 compensation associated with those occupations (Table 6.8).

Table 6.8: Compensation by Category, Acute Care Sector, Nova Scotia, 2000-01

Category	\$ Compensation	% of total
Regular pay	\$302,606,484	77.3%
Overtime pay	\$9,851,089	1.9%
Holiday pay*	\$19,979,848	6.0%
Vacation pay*	\$40,540,865	6.3%
<i>Sick pay</i>	<i>\$15,369,628</i>	<i>3.8%</i>
Other leave	\$10,257,884	2.2%
Other	\$9,250,463	2.4%
Total	\$407,856,261	100.0

Source: Districts, 2000-01

* A portion of Vacation and Holiday were derived, aggregate total reflects actual reported

Table 6.9 shows six occupations which exceeded the 3.8% sick pay average, with three of them, registered nurses, medical laboratory technologists and licensed practical nurses, accounting for almost 80% of the total sick pay expenditures.

Table 6.9: Occupations with Above Average Sick Pay, Acute Care, NS, 2000-01

Category	Sick pay as % of Compensation	Sick pay \$
Licensed Practical Nurse	4.4%	\$1,316,424
Operating Room Assistant	4.3%	\$60,300
Nursing Assistant/Orderly	4.3%	\$625,664
Physiotherapy Assistant	4.2%	\$72,900
Registered Nurse	4.1%	\$9,397,835
Psychology Assistant	4.1%	\$50,948

Expressed in terms of hours, sick time totaled to 795,637 hours, or 4.4% of the total earned hours in 2000-01 by those 26 occupations.

Assuming a 7.5-hour work day, the 4.4% average number of sick hours across the 26 occupations translated into an average of 6.1 days. As the next Table shows, sick days ranged from a high of 9.7 days per year for operating room assistants to 2.6 days per year for dietitians (Table 6.10).

Table 6.10: Average Days Lost per Year Due to Illness, by Occupation, 2000

Occupation	Days lost to illness
OR Assistant	9.7
Medical Radiation Technologist	9.6
Medical Laboratory Technologist	9.0
Registered Nurse	9.0
Nursing Assistant	8.9
Pharmacy Technician	8.9
Respiratory Therapist	8.9
Physiotherapy Assistant	7.5
Licensed Practical Nurse	7.3
Health Records	6.9
Medical Sonographer	6.9
Average	6.1
Recreation Therapy Assistant	6.1
Social Worker	6.1
Psychology Assistant	5.9
Recreation Therapist	5.7
Occupational Therapist	5.6
Occupation Therapy Assistant	5.5
Dietitian Assistant	5.2
Physiotherapist	5.0
Cardiology Technologist	4.9
Psychologist	4.7
Counsellor	4.6
Health Managers	4.2
Pharmacist	3.5
Respiratory Therapy Assistant	3.3
Dietitian	2.6

Sick time reported by the 26 occupational groups accounted for 408 FTEs. As would be expected given occupational size and their relatively high rates of sick time, most of the "sick FTE's" were among registered nurses, licensed practical nurses, nursing assistant and orderlies and medical laboratory technologists and technicians (Table 6.11).

Table 6.11: Sick Time FTEs by Selected Acute Care Occupation, 2000-01

Category	Sick FTE/100 FTEs	Sick time FTEs
Registered Nurse	4.6%	223.2
Licensed Practical Nurse	4.6%	46.1
Medical Laboratory Technologist	4.6%	41.6
Nursing Assistant/Orderly	5.9%	27.5
Medical Radiation Technologist	3.5%	12.8
Health Records	3.5%	6.8
Health Manager	2.2%	5.4
Physiotherapists	3.1%	4.8
Pharmacy Technician	4.5%	4.7
Respiratory Therapist	4.2%	4.2
Occupational Therapist	3.5%	3.5
Operating Room Assistant	5.4%	2.3
Psychology Assistant	5.0%	1.9

As stated in table 6.11, four occupations accounted for 338 FTEs, or about 83% of the total "sick FTEs" across the 26 occupations.

6.2.3.2 Sick Time – Continuing Care

In continuing care, sick time appeared to follow a similar pattern to acute care. Based on limited information made available by continuing care institutions, sick pay accounted for about 3.5% of the total compensation paid to employees of continuing care facilities in 2000-01, versus 3.7% in acute. Sick pay reported ranged from 1.3% in Residential Care Facilities to 3.8% among Nursing Homes (Table 6.12).

Table 6.12: Sick Pay by Type of Continuing Care Facility, 2000-01

Facility	% of Compensation	% of Total Hours
Nursing Homes	3.8%	4.0%
Home Care/Home Support	3.5%	4.3%
Community Based Options	3.2%	3.0%
Residential Care Facilities	1.3%	1.8%
Average	3.5%	3.6%

6.2.4 Employment Insurance

Human Resource Development Canada (HRDC) provides three types of benefits under its Employment Insurance (EI) program:

- *Regular benefits* paid to people who have lost their job through no fault of their own and want to return to work
- *Sickness benefits* paid to people who are unable to work because of sickness, injury or quarantine
- *Maternity benefits* payable to the birth mother, and *Parental benefits* payable either to the biological or adoptive parents while they are caring for a new-born or an adopted child.

On average, there was one EI claim filed for every 2.9 full time equivalent health care workers in 2000.¹⁰³ Comparing selected health occupations, the number of FTEs per claim ranged from one claim for every 2.0 FTE opticians to one claim for every 34.6 FTE dentists (Table 6.13).

Table 6.13: EI Claims per FTE by Selected Health Occupations, NS, 2000

Occupational Group	# FTE/Claim
Opticians	2.0
Occupational Therapists	2.2
Audiologists & Speech Language Pathologists	2.2
Dietitians & Nutritionists	2.3
Respiratory Therapists	2.3
Medical Radiation Technologists	2.4
Registered Nurses	2.5
Licensed Practical Nurses	2.8
Average	2.9
Physiotherapists	3.3
Pharmacists	4.5
Medical Laboratory Technologists	4.7
Paramedics	5.7
Psychologists	6.0
Denturists	6.5
Medical Sonographers	14.4
Dentists	34.6

Of the selected health occupations included in the analysis, the average EI claim was \$3,191 in 2000.

Table 6.14 shows the type of EI claims paid to selected health care workers in 2000. On average, maternity benefits accounted for 43% of EI claims, regular EI accounted for 41% and sickness accounted for 16% of claims. Comparing occupations:

- Pharmacists, respiratory therapists, physiotherapists, medical radiation techs, psychologists, occupational therapists and audiologists and speech language pathologists had higher proportions of EI claims as maternity benefits;
- Licensed practical nurses and medical laboratory techs had higher than average proportions of claims as regular EI benefits (66% and 56% respectively, versus 41% on average overall);
- Registered nurses had higher than average proportions of claims as EI sickness benefits (20% versus 16% on average overall).

Table 6.14: Use of EI Claims, Selected Nova Scotia health Occupations (Female*), 2000

Occupational Group	Maternity	Regular	Sickness
Audiologists & Speech Language Pathologists	61%	39%	0%
Dietitians & Nutritionists	48%	49%	3%
Licensed Practical Nurses	19%	66%	16%
Medical Laboratory Technologists	30%	56%	14%
Medical Radiation Technologists	64%	33%	3%
Occupational Therapists	62%	29%	9%
Pharmacists	84%	9%	7%
Physiotherapists	65%	23%	12%
Psychologists	62%	30%	8%
Registered Nurses	45%	35%	20%
Respiratory Therapists	70%	22%	7%
Average	43%	41%	16%

* Only those occupations where females account for at least 2/3 were analysed.

Table 6.15 illustrates the distribution of EI claims by region for selected health occupations. On average, these selected health care occupations had 16.6 EI claims per 1,000 Nova Scotians. There were more EI claims per 1,000 population made in Cape Breton and the South Shore, and lower numbers of claims per 1,000 population in both the Halifax Regional Municipality and the Annapolis Valley region, comparable to the unemployment rates in these regions during the same period.

Table 6.15: EI Claims, Health Professions in NS, by Economic Region, 2000

Region	Claims/1,000 Popn.	Unemployment Rate Dec. 2000*
Annapolis Valley	12.1	6.9%
Cape Breton	27.2	16.5%
Halifax	13.0	6.0%
North Shore	16.4	9.0%
South Shore	18.4	10.6%
Average	16.6	8.7%

* NS Department of Finance – Statistical Division

103. Data obtained from Human Resource Development Canada

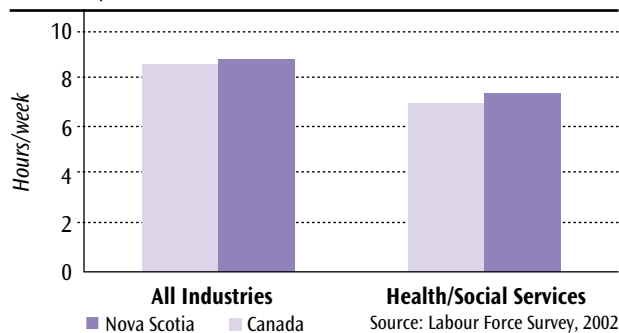
6.3 WORKING OVERTIME

Several occupational representatives suggested that shortages of personnel and relief staff, coupled with increasing demands for service, have resulted in high levels of working overtime.

In the health care industry, Statistics Canada's Labour Force survey suggests health care workers are less likely to work overtime than workers in other industries. Almost one in five health care workers (19.6%) in Nova Scotia worked paid or unpaid overtime in 2002. This was slightly higher than the proportion of health care workers in Canada who worked overtime (18.6%). However, non-health workers in Nova Scotia and Canada were somewhat more likely to work overtime; 21.3% of workers in Nova Scotia and 22% of Canadian workers worked overtime in 2002.

Health care workers also worked less overtime in 2002, on average, compared to the workforce as a whole. According to the 2002 Labour Force Survey, of those who worked overtime, health care workers in Nova Scotia averaged an extra seven hours of *paid* or *unpaid* overtime (Figure 6.10). In the Nova Scotia workforce as a whole, those who worked overtime in 2002 put in on average 8.8 hours per week extra. Health care workers in Canada as a whole who worked overtime logged slightly less extra time than their Nova Scotia counterparts, 6.8 hours versus seven. The same was true in the Canadian workforce as a whole, where those who worked overtime in 2002 spent, on average, 8.6 hours extra per week at work, slightly less than the 8.8 hours in Nova Scotia.

Figure 6.10: Overtime (hrs/week) of Those People Working Overtime, All Industries vs. Health/Social Services, NS and Canada



6.3.1 Overtime – Acute Care (hospitals)

Table 6.16 reflects information gathered from DHAs and IWK in acute care (hospitals), showing overtime represented, on average, 2.4% of total compensation paid to health care workers in 2000-01.

Table 6.16: Overtime as Percentage of Compensation by DHA, 2000-01

DHA	Percentage of Compensation
1	0.9%
2	1.4%
3*	1.5%
4	1.4%
5	2.1%
6	1.2%
7	2.1%
8	2.0%
9	3.2%
IWK	2.2%
TOTAL	2.4%

* derived estimate

Table 6.17 shows the percentage of overtime worked for each occupation in acute care, as well as work hours attributed to regular vs. overtime work, and what that translates into in FTEs.

The proportion of hours attributed to overtime for selected health occupations in acute care varied from 0.1% to 4.3%. The overall average attributed to overtime was 2.4% of compensation, and 1.8% of hours. Overtime hours for operating room assistants, respiratory therapists and registered nurses and counselors were above average, at 4.3%, 3.3%, 2.6 % and 2.0% respectively. Almost half (11) of the 26 occupations had less than 1% of their work hours attributed to overtime.

On average across the 26 occupations, for every one hour of overtime, there were 42 hours of regular time worked. This equates to approximately one hour of overtime worked per week for an employee in a acute care setting in Nova Scotia.

Table 6.17: Overtime as Percentage of Total Hours, Ratio to Regular Hours Worked, by Acute Care Occupation, 2000-01

Occupation	Overtime	Regular Hours : OT Hours	Equivalent FTEs
Operating Room Assistant	4.3%	17:1	1.9
Respiratory Therapist	3.3%	23:1	3.5
Registered Nurse	2.6%	29:1	121.2
Counsellor	2.0%	39:1	1.4
Average /Total	1.8%	42:1	168.5
Sonographer	1.8%	42:1	.7
Medical Radiation Technologist	1.7%	45:1	6.3
Medical Laboratory Technologists	1.2%	67:1	10.8
Cardiology Technologist	1.1%	70:1	.9
Licensed Practical Nurse	1.1%	72:1	10.2
Psychology Assistant	1.1%	76:1	.4
Recreation Therapy Assistant	1.0%	83:1	.1
Recreation Therapist	0.9%	87:1	.1
Nursing Assistant/Orderly	0.8%	97:1	4.4
Pharmacy Assistant	0.7%	107:1	.8
Health Records	0.7%	119:1	1.3
Dietitian/Nutritionist	0.7%	122:1	.6
Respiratory Therapy Assistant	0.6%	127:1	.2
Pharmacist	0.6%	134:1	.7
Social Worker	0.5%	177:1	.8
Occupational Therapy Assistant	0.5%	178:1	.1
Health Manager	0.4%	189:1	1.0
Physiotherapist Assistant	0.4%	224:1	.2
Physiotherapist	0.2%	378:1	.3
Occupational Therapist	0.2%	382:1	.2
Dietitian Assistant	0.1%	842:1	.1
Psychologist	0.1%	891:1	.1

Table 6.17 also illustrates the hours associated with overtime, translated into equivalent FTEs (where 1 FTE = 1950 hours). The FTEs attributed to RNs (based on overtime hours) totaled 121.2 FTEs. However, for 15 of the 26 selected health occupations, overtime equated to less than one FTE for the entire year. For these 26 acute care occupations, a total of 168.5 FTEs were attributed to overtime hours. It is important to remember that while an hour of overtime is equivalent to a regular worked hour, the overtime hour will actually cost the system more than the regular hour (typically 1.5 to 2 times).

6.3.2 Overtime – Continuing Care

The overtime rate in continuing care was lower than it was in acute care, averaging just over one per cent of payroll. As with sick time, the higher rates were experienced by CBOs and LTC – 1.4% and 0.9% respectively (Table 6.18).

Table 6.18: Overtime Pay by Type of Continuing Care Facility, 2000-01

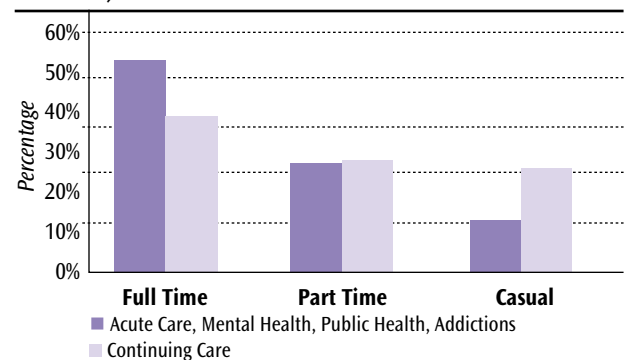
Facility	% of Compensation
Community Based Options	1.4%
Long Term Care Nursing Homes	0.9%
Home Care/Home Support	0.5%
Residential Care Facilities	0.2%
Average	1.0%

6.4 EMPLOYMENT STATUS

People working in health care are much more likely to be employed on a part time or casual basis than other Canadian workers. A special *Workplace and Employee Survey*¹⁰⁴ published by Statistics Canada in 1999 found that in 1998 only 52% of workers in health care had full time positions, compared with 74% of Canadians working outside the health field.¹⁰⁵

The picture is the same for Nova Scotia health workers. Information obtained from acute care facilities, mental health, public health and addiction services indicated that in 2000, 55% of workers were employed full time, 30% had part time work and 15% were employed on a casual basis. Full time employment was harder to find in continuing care, as it accounted for only 41% of employment. Part time employment accounted for 30% and casual for 28% (Figure 6.11).

Figure 6.11: Employment Status, Nova Scotia Health Workers, 2000



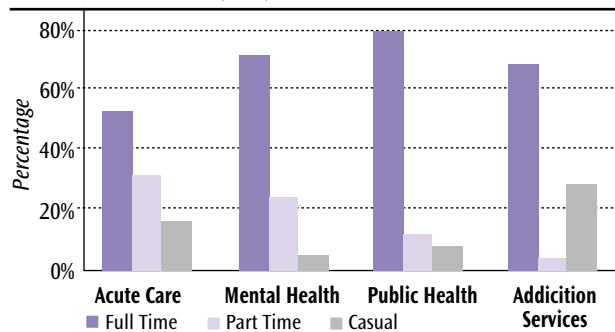
104. Workplace and Employee Survey, Statistics Canada, 1999

105. Canadian Institute of Health Information, "Canada's Health Care Providers," p. 41

6.4.1 Acute Care, Mental Health, Public Health and Addiction Services

Figure 6.12 shows the employment status of workers employed in acute care (hospitals), mental health, public health and addiction services.

Figure 6.12: Employment Status of Acute Care (Hospitals), Mental Health, Public Health and Addiction Services, NS, 2000-01



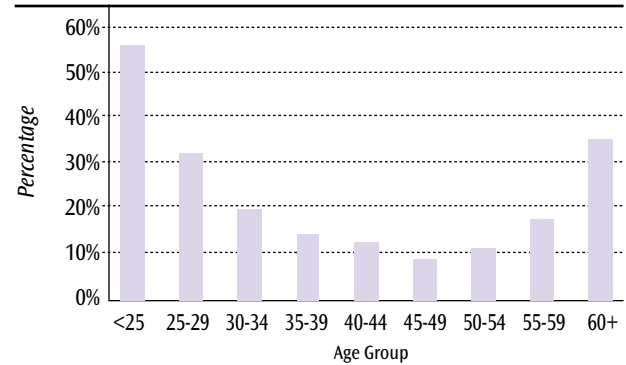
In acute care hospitals, mental health, public health and addiction services in 2000 approximately 55% of workers were employed full time, 30% had part time work and 15% were employed on a casual basis. As the figure shows, the highest percentage of full time work was in public health (80%), mental health (71%), and addiction services (68%). However, these three areas employed less than 2000 workers. Acute care hospitals employed 53% of its more than 18,000 workers on a full time basis. This helps to account for the prevalence of part time employment in the health sector.

Analysis of data from acute care settings revealed that casual employment was highest among younger workers, reflecting that it may take several years to work into full time positions. Over one-half (56%) of workers under 25 years of age, and one-third (33%) of workers between ages 25-29 years, worked in casual positions in acute care hospital settings in 2000.

As people move into full time jobs, a much lower percentage work casual. The proportion who worked casual reached a low of 9% for those between 45-49 years of age. However, the percentage of workers employed casual starts to increase again among workers 50 years and older. By 60 years of age, 35% of workers in acute care were employed on a casual basis. A possible explanation may be that some workers opt for pre-retirement by working casual, or they return to the workforce following retirement to work on a casual basis.

Figure 6.13 shows the resulting 'U' shape distribution of casual employment among younger and older age groups.

Figure 6.13: Casual/Relief Status by Age Group, Selected Health Occupations in Acute Care, NS, 2001

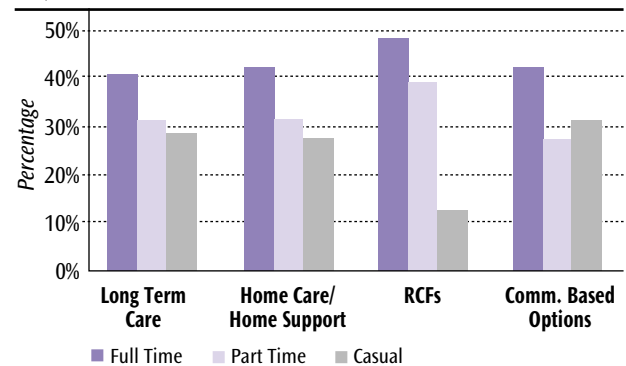


6.4.2 Continuing Care

Based on limited returns from data sources, 38% of CBOs and 47% of LTC facilities, part time work appears to dominate the employment picture in continuing care, particularly in LTC and CBOs, where almost 80% of continuing care jobs existed.

Bearing in mind the limitations of the response, workers in continuing care were employed 42% full time, 30% part time and 28% casual or relief. Figure 6.14 shows the employment status of workers employed in these settings, based on the information reported. The figure shows the following:

Figure 6.14: Continuing Care Employment Status, NS, 2000-01



- The highest percentage working full time was in RCFs (49%).
- Part time employment ranged from 26% in CBOs to 39% in RCFs.
- Casual employment was highest in CBOs (31%) and lowest in RCFs (12%).

6.4.3 Employment Status by Occupation

Of the 31 occupations profiled for this study, about 65% (13) of the workers profiled had employment status information available. As Table 6.19 shows, they ranged from a high of 98% full time employment for paramedics to a low of 39% for personal care workers.

Table 6.19: Employment Status of Selected Occupations

Occupation	Year	Full time%	Part time%	Casual%
Community Residential Workers	2002	44%	27%	29%
Dietitians	2001	58%	26%	17%
Home Support Workers	2002	55%	22%	23%
Licensed Practical Nurses	2002	49%	26%	23%
Medical Radiation Techs	2001	50%	26%	24%
Occupational Therapists	2001	70%	29%	1%
Paramedics	2002	98%	2%	0%
Personal Care Workers	2001	39%	29%	32%
Pharmacists	2001	72%	NA	NA
Physiotherapists	2001	74%	21%	5%
Medical Laboratory Techs	2001	73%	23%	4%
Registered Nurses	2002	60%	26%	14%
Respiratory Therapists	2001	76%	15%	9%

Occupations with 70% or more workers in full time employment included paramedics (98%), respiratory therapists (76%), physiotherapists (74%), medical laboratory techs (73%) and occupational therapists (70%)

Casual employment was highest among occupations employed in continuing care settings. The following occupations each had close to one in four working casual:

- Community residential workers (30%)
- Personal care workers (30%)
- Licensed Practical Nurses (25%)
- Home support workers (23%)

Analysis of registered nurse employment status information between 1998 and 2002 revealed a noteworthy trend. In 1998, the vast majority of younger registered nurses worked in casual employment; 83% of registered nurses 25 years of age and under, and 58% of registered nurses between 25-29 years of age, worked in casual jobs in 1998. Furthermore, only 7% of RNs under 25 years of age worked full time. The lack of available full time employment upon graduation was considered to be a contributing factor to the outflow of recent graduates moving elsewhere in search of jobs.

Since 1998 there has been a considerable change in the proportion of younger RNs working full time. There were nearly 8 times as many full time jobs for younger RNs in 2002 as compared with 1998.

It is noteworthy that older nurses are increasingly more likely to work on a casual basis. The proportion of older workers (i.e. 65 years and older) working on a casual basis increased from 19% in 1998 to 46% in 2002, indicating that RNs approaching retirement age are not necessarily leaving the workforce.

6.4.3.1 Acute Care Occupations

Following is an employment status summary for selected health occupations in acute care hospitals in Nova Scotia. It shows that for the 26 selected occupations, full-time employment in 2000-01 was 55%, slightly higher than for the acute care workers as a whole.

Table 6.21 shows occupations with high full time employment included: health executives (83%) and operating room assistants/technicians (72%). In contrast, respiratory therapy assistants, licensed practical nurses and nursing assistants/orderlies all had less than 45% full time employment. As well, occupations such as recreation therapy assistants, occupational therapist assistants and dietitian/nutritionists had over 40% employed on a part time basis. On average, 15% of these selected health occupations in Nova Scotia hospitals worked on a casual/relief basis, including over 20% of the licensed practical nurses, nursing assistants/orderlies, cardiology techs and counsellors.

Table 6.20: Employment Status for Selected Health Occupations, NS Hospital Setting, 2000-01

Occupation	Employment Status			Total
	Full Time	Part Time	Cas./Rel.	
Cardiology Technologist	50%	29%	21%	100%
Counsellor	71%	8%	21%	100%
Dietician Assistant	66%	23%	11%	100%
Dietician/Nutritionist	56%	41%	3%	100%
Health Executive	83%	13%	4%	100%
Health Records Admin/Tech	65%	25%	10%	100%
Licensed Practical Nurse	41%	28%	32%	100%
Medical Laboratory Technologist	60%	31%	10%	100%
Medical Radiation Technologist	56%	28%	16%	100%
Medical Sonographer	59%	23%	18%	100%
Nursing Assistant/Orderly	44%	31%	25%	100%
Occupational Therapist	58%	38%	4%	100%
Occupational Therapist Assistant	58%	42%	0%	100%
Operating Room Assistant/Technician	72%	13%	14%	100%
Pharmacist	68%	25%	8%	100%
Pharmacist Assistant/Technician	65%	25%	10%	100%
Physiotherapy Assistant	54%	30%	16%	100%
Physiotherapist	54%	35%	11%	100%
Psychologist	62%	22%	17%	100%
Psychology Assistant/Technician	69%	14%	17%	100%
Recreation Therapist	70%	30%	0%	100%
Recreation Therapy Assistant	34%	66%	0%	100%
Registered Nurse	50%	36%	14%	100%
Respiratory Therapist	65%	21%	14%	100%
Respiratory Therapist Assistant/Technician	72%	19%	8%	100%
Social Worker	65%	28%	8%	100%
Overall	55%	30%	15%	100%

6.5 EMPLOYMENT TRENDS AND ISSUES

A number of employment trends and issues were identified as a result of consultations and the literature review to have the potential to impact future planning, recruitment, and retention of the health workforce.

6.5.1 Changing Lifestyle Expectations

Health care workers are increasingly thought to value a more balanced, healthy lifestyle, including more time to spend with their families. During consultation with key informants, physicians in particular mentioned 'lifestyle related issues' as an important consideration among doctors.¹⁰⁶

Many physicians want to work fewer and more predictable hours. For instance, in a 2001 survey close to one in five family physicians in Nova Scotia (18%) indicated they planned to reduce the number of hours they worked during 2001-2003. Only 2% indicated they planned to increase the hours they work.¹⁰⁷

This is understandable considering the high number of hours that family physicians in Nova Scotia work each week. The 2001 *National Family Physician Workforce Survey (NFPWS)*¹⁰⁸ found that physicians in Nova Scotia worked, on average, a 78-hour week. Of this total, 56.3 hours were for regular hours and 21.8 were for on-call hours. This was 13% higher than the hours worked by Canadian family physicians overall, who worked 52 regular hours and 17 on-call hours, for a total of 69 hours per week.

On-call service was a particular concern in rural areas. The NFPWS showed 86% of Nova Scotia family physicians provided on-call service, compared with 74% of family physicians in Canada. Of those who provided on-call services, family physicians in Nova Scotia worked 84 hours per week in 2001, made up of 58 regular and 26 on-call hours.

Changing lifestyle expectations has been mentioned as a possible reason medical students may be avoiding family physician practice.¹⁰⁹ There may also be a perception among medical students that specialists are paid better, have more manageable practices and are valued more highly in the health care system, which could be contributing to fewer medical graduates choosing family practice.¹¹⁰ Lifestyle expectations may also be partly responsible for physicians moving towards group practices, which is increasingly sought after by younger and female physicians.¹¹¹

In addition to physicians, health service managers suggested that the impact of personal lifestyle sacrifices, increasing levels of stress, burnout and long working hours of health care leaders may be a potential disincentive to attracting future leaders into management positions.

106. College of Physicians and Surgeons and the Nova Scotia Medical Association ranked lifestyle as priority issue during key informant interviews

107. 2001 National Family Physician Workforce Survey (NFPWS)

108. National Family Physician Workforce Survey (NFPWS), 2001

109. National Physician Planning Report. Phase 1.

110. Key informant interview, Dalhousie Faculty of Medicine.

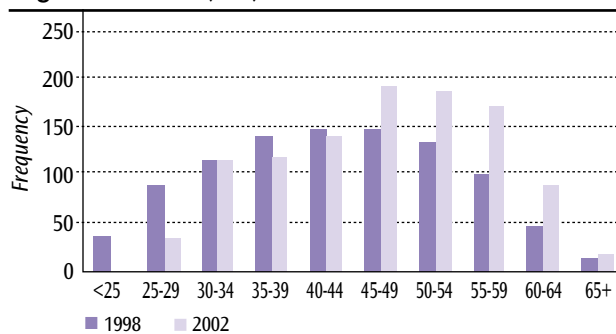
111. National Physician Planning Report. Phase 1.

An indicator of challenges health service managers face in balancing personal and working lives was highlighted by data obtained from the DHAs occupations to take their allowable vacation entitlement. In 2000 health care managers took only 60% of their allowable vacation time, banking 40%. This compares with other health occupations taking 71% of their allowable vacation.

Key informants in continuing care suggested that changing lifestyle expectations of younger job seekers has made recruitment more challenging.¹¹² Several employers suggested competition from other sectors, such as call centers, has made it increasingly difficult to attract young, college-trained workers to continuing care. Furthermore, there was a feeling among some front-line workers that younger workers are not adequately prepared for the work environment, including the nature of the health needs of clients and scheduling demands of working in continuing care.

The perception that caring for elderly patients is an unattractive career choice, particularly among students and those entering practice, was a concern for registered nurses. New nurse graduates were thought to prefer working in acute care settings over long term care and home care/home support. As noted in 6.4.3, recruitment of younger RNs into continuing care settings will increasingly be of concern, since the workforce caring for elderly patients is itself approaching retirement, with almost half the gerontology RN workforce over 50 years of age in 2002. This represents an aging of gerontology RNs since 1993, when 30% were 50 years of age or older and 13% were under 30 years of age (Figure 6.15).

Figure 6.15: Age Distribution of Gerontology Registered Nurses, NS, 1993 and 2002



6.5.2 Workload Issues

Workload of health care providers was frequently raised as a significant concern. The importance of manageable workload was cited throughout literature as a key factor in recruitment, retention and productivity. For instance, high workload has

been mentioned as a key factor in high staff turnover, poor employee morale, burnout, lowered levels of productivity and increased potential for client harm.¹¹³

Addressing high workload was of concern to the majority of health occupations interviewed for this study. Some of the challenges identified by health occupations included the following:

- Shifting population demographics with an increasing number of elderly Nova Scotians has affected patient acuity, and increased demands for certain kinds of services and added to workload. Patients in virtually every employment setting were presenting with more complex problems, requiring greater time and resource commitments than in the past;
- Restructuring of the health care system has had an impact on workloads in many employment settings. For instance, the impact of shorter length of stays in acute care hospital settings was thought to result in patients moving into community and long term care settings more quickly, affecting the workload demands of workers in these settings;
- Concerns raised over the possible impact of increasing workloads included potential for error and delays in service, lower standards of practice, less confidence that patients can adequately care for themselves following discharge, high levels of overtime, increasing challenges in scheduling (i.e. getting vacation time booked off) and more stress, burnout and sickness;
- The measurement of workload remains a challenge. There are no national standards for measuring workload for many health occupations. Existing systems, such as the provincial Management Information System (MIS), have been mostly limited in use in acute care, and to date have not been expanded to include other practice settings, such as continuing care. Workload measurement tools are not being used consistently across employment sector and health districts, making comparisons difficult; and
- Acceptance of workload measurement systems among some occupations was hampered by the view that there is no way to accurately quantify workload considering the broad array of variables involved, such as patient acuity, support systems, skill and experience level of health care providers, technological innovations, and so on.

112. Human Resource Issues Study, Continuing Care Sector for the Health Care Human Resource Sector Council, 2002 Consensus Report. Wayne Marsh, Gail Boone, December, 2002.

113. For an extensive review of literature see Bauman, A., O'Brien-Pallas, L., Armstrong-Stassen, M., Blythe, J., Bourbonnais, R., Cameron, S., Doran, D.I., Kerr, M., McGillis-Hall, L. Vezina, M., Butt, M., Ryan, L. (2001) Commitment and Care: The benefits of a healthy workplace for nurses, their patients and the system. Canadian Health Services Research Foundation and the Change Foundation.

6.5.3 Public and Professional Identity

A recurring problem in continuing care relates to the image of *personal care workers, home support workers and community residential workers* as representing less 'professional' work than in other health settings. These workers often express frustration that their contribution and role in health care is not valued and respected by fellow colleagues and members of the public.¹¹⁴

Social workers also expressed concern about the public's perception of what they do. Downsizing and the restructuring of services has resulted in the redefinition of social worker roles, with social work functions sometimes being carried out by those in other occupational categories. Key informants also voiced concern that the societal support of the field of social work appears to be weakening, perhaps as a part of a broader decline in societal commitment to support the most vulnerable. Establishing roles and recognition of 'fit' for social workers within emerging health care service delivery models was seen as an important step in renewal for the profession.

Several other occupations indicated they felt their professional roles are not well understood, either by the public or other health care providers. For instance, *therapeutic recreation professionals* suggested that the role and benefit of therapeutic recreation in health is still not widely understood by many health occupations and members of the public. Although they are actively involved in the full continuum of health care service delivery, including acute care and rehabilitation settings, community-based care, adult day care, transitional care and mental health, among others, they are typically not mentioned as part of the team delivering health care services.

Moreover, key informants suggested that the skills and competencies of therapeutic recreation professionals will likely be increasingly important as the provincial population ages. Therapeutic recreation professionals play an important role in the treatment of older adults, including stroke, cardiac dysfunction, cancer, Alzheimers disease and psychiatric disorders. Furthermore, a variety of positive outcomes for older adults have been associated with therapeutic recreation interventions, above and beyond those associated with physical rehabilitation.¹¹⁵

As noted in 6.1, increasing numbers of Nova Scotians are availing themselves of complementary or alternative services such as chiropractic care, massage therapy, homeopathy, herbal remedies, reflexology and traditional Aboriginal or Chinese medicine.

While the public has mostly greeted these new disciplines positively, the acceptance of alternative and complementary services within the established health care community has been hampered, to some extent, by a perception that these disciplines lack a sufficient research base. Proponents of 'scientific validation' generally view these professions as having insufficient evidence-base foundations to allow other health occupations and the public to better understand the efficacy and effectiveness in treating various health symptoms.

Despite its growing popularity, the benefits of massage therapy have not been extensively documented. Furthermore, research from the past has yielded inconsistent results and the scientific community has often criticized studies as methodologically flawed.¹¹⁶ Therefore, many health care providers view massage therapy as something that 'feels good,' but may not necessarily be aware of the health benefits.

Given the public's interest in alternative and complementary therapies, there will be pressure on health care providers to become better educated on available information. For instance, a recent Pharmacy Practice Survey indicated 99% of retail pharmacies carry at least some herbal and homeopathic remedies, and drug stores are the most common purchase location for these products. This survey indicated that 61% of respondents expected their pharmacists to be able to provide guidance on herbal remedy selection, but almost half of the pharmacists surveyed felt they did not have adequate knowledge to counsel consumers on these products.¹¹⁷ It is noteworthy that herbal therapy is now an integral part of the curriculum at the College of Pharmacy at Dalhousie.

Chiropractic care is likely the most established complementary health care service. Over the past 25 years, there have been numerous, and ongoing government inquiries and scientific studies that support chiropractic care as a safe, efficacious, and cost-effective treatment for specific health conditions, such as relieving musculoskeletal symptoms.¹¹⁸

Despite this research, some chiropractors feel there continues to exist a misunderstanding and bias from the medical community and in health care planning, against the use of complementary approaches in the delivery of health care services. Chiropractors believe the lack of recognition of the proven benefits of chiropractic care, coupled with the silo approach to public health care, has hampered the integration of chiropractic care into primary health care, particularly in the early stages of treatment.

114. For instance, see Human Resource Issues Study, Continuing Care Sector for the Health Care Human Resource Sector Council, 2002 Consensus Report. Wayne Marsh, Gail Boone, December, 2002.

115. Key informant interview

116. Ernst, Edzard (1999). Massage Therapy for Low Back Pain: A Systematic Review. *Journal of Pain and Symptom Management*. Vol 17(1), pp 65-69.

117. Pharmacy Practice Survey

118. For an overview of clinical research and government reviews of chiropractic interventions over the past 25 years see "The Chiropractic Report," March 1997, Vol. 11 (2).

6.5.4 Compensation related issues

6.5.4.1 Average Earnings – How Nova Scotia Compares

Data from Statistics Canada Labour Force Survey show that in 2002, the average weekly wage of professional occupations in health, nurse supervisors and registered nurses was \$827 (Table 6.22). This was 2.6% lower than the \$848 average weekly wage among Canadian workers in the same occupations. Among those employed full time, average weekly earnings in Nova Scotia was \$936, 1.8% less than the average for Canada (\$954). Average weekly wages of those working part time was 8.3% lower in Nova Scotia (\$491) than the average for part time Canadian health care workers (\$532).

The average weekly wage of *technical, assisting and related occupations* in Nova Scotia (total) was \$508, which was 8% less than their Canadian counterparts (\$549). Among those employed full time, average weekly earnings for technical and assisting occupations in Nova Scotia was \$570, 12.6% lower than the average for Canada (\$642). Average weekly wages of those working part time was 8.3% lower in Nova Scotia (\$491) than the average for Canadian part timers (\$532).

Although average weekly wages were slightly lower in Nova Scotia as compared with the average for Canada, Nova Scotia has seen more rapid growth in wages from 1998 to 2002. For instance, the total average weekly wage of professional occupations in health, nurse supervisors and RNs, increased 30% in Nova Scotia, compared with 23% increase in Canada. The total average weekly wages for technical, assisting and related occupations also grew by a high percentage in Nova Scotia (23%) compared to Canada (7%) (Table 6.21).

Table 6.21: Average Weekly Wages of Selected Occupations, NS, 1998-2002

Nova Scotia	Professional occupations in health, nurse supervisors and RNs			Technical, assisting and related occupations		
	Total	FT	PT	Total	FT	PT
1998	636	723	392	413	469	223
1999	703	788	433	425	483	241
2000	722	814	435	458	513	359
2001	741	836	410	511	570	246
2002	827	936	491	508	570	286
% change 98-02	30%	29%	25%	23%	22%	28%

Canada						
Year	Total	FT	PT	Total	FT	PT
1998	692	805	433	514	597	300
1999	743	853	455	509	589	302
2000	770	873	470	510	594	305
2001	801	898	512	549	636	316
2002	849	954	532	549	642	322
% change 98-02	23%	19%	23%	7%	8%	7%

Source: Labour Force Survey 2002

6.5.4.2 How Physicians are Paid

Most health care professionals receive their income in the form of salary, but physicians are paid using a variety of different methods. Historically, most physicians billed the province for each service they provide to patients, known as a 'fee for service' system of payment. Some argue that the traditional fee for service system of paying physicians is an outdated concept. The most common criticism is that fee for service provides incentives for inappropriate and more expensive care, and no incentives for personal wellness and prevention. Furthermore, it fails to capture physicians' time spent on other work activities, such as research, teaching, management and administration, on call, and professional development activities. Fee for service is therefore an incomplete measure of physician workload and use of physicians' services in Nova Scotia.

A concern with on-call arrangements is that the fee-for-service billing system does not reimburse physicians appropriately for the hours they are actually on call. The current contract with the Nova Scotia Medical Society, has addressed the on-call issue to some extent, with the inclusion of specific clauses for "remote practice on call" and "facility on-call". However, there are many physicians in Nova Scotia today that are not reimbursed for "stand by" call.

In nearly every province and territory in Canada, provinces are trending toward non-fee-for-service payment systems. In 1990, about two thirds (68%) of physicians responding to the Canadian Medical Association's Physician Resource Questionnaire indicated they received all their remuneration from fee-for-service. By 2001, the percentage of physicians in Canada receiving all remuneration solely from Fee for Service was down to 59% of physicians. A Physician Resource Survey¹¹⁹ conducted by the Canadian Medical Association in 1997 also noted a shift in physicians' desired method of payment, as those stating fee-for-service as preferred method of payment went from 50.4% in 1995, to 37.9% in 1997.

Nova Scotia has demonstrated national leadership in moving away from fee for service as the sole type of physician payment. Table 6.22 shows 42% of physicians in 2000-01 received some combination of fee for service and alternative funding, and 20% were deriving their income solely from alternative funding sources. Only 38% of physicians in Nova Scotia derived their income solely from fee for service payments compared to 59% of physicians in Canada.

119. Canadian Medical Association, "The CMA Physician Resource Survey - Taking the Pulse 2001", CMA, Ottawa, 1997

Table 6.22: Physicians by Payment Type, by Specialty, 2000-01

Specialty Group	FFS	Non-FFS	Combo
Anaesthetic	27%	12%	61%
Diagnostic Radiology	0%	19%	81%
Emergency Medicine	5%	29%	66%
General Internal Medicine	11%	21%	68%
General Practice	47%	6%	47%
General Surgery	85%	4%	11%
Internal Medicine Sub-Specialties	23%	66%	11%
Lab Specialties	4%	48%	48%
OBGYN	69%	6%	26%
Other	22%	63%	16%
Paediatrics	14%	64%	22%
Psychiatry	25%	46%	28%
Surgical Sub-Specialties	66%	5%	29%
Total All Specialties	38%	20%	42%

6.5.4.3 Compensation Issues in Continuing Care

During a study of issues in the continuing care sector, front-line providers were asked which critical factors, if addressed, would make a significance contribution to a sustainable workforce. Fair wages and benefits, accounting for over 45% of all points assigned by participants during this exercise¹²⁰ were considered to be important recruitment and retention issues.

Determining the *value* of work in continuing care is a common issue. There are equity issues perceived and/or real when workers compare their pay scales with people working in other industries. Inequities also may exist across sectors in health care and, even, across employers within continuing care.

This issue manifested in Nova Scotia in the Spring and Summer of 2003 when residential rehabilitation workers (RRWs) employed within some group and small option homes in Metro Halifax went on strike claiming wage parity with developmental workers at the Nova Scotia Hospital.

As was shown previously, several occupations in continuing care have high rates of part time and casual employment.

- 23% of HC/HS workers employed in publicly-funded home support agencies were employed on a casual basis and 22% were employed part time in 2002¹²¹
- 30% of CRWs working in facilities funded by DCS were employed on a casual basis and 27% worked part time in 2002¹²²
- 32% of personal care workers were reportedly employed on a casual or term basis, and 28% were employed part time in 2001.¹²³

For many, this means no guarantee of consistency in worked hours. For others it means an absence of employment benefits such as retirement pensions, vacation pay, long term disability benefits, dental benefits, and so on. Casual workers are not members of a bargaining unit and are not covered by the conditions of collective agreements.

Compensation for travel expenses was an issue for some workers, who often spend a considerable amount of time and expense traveling to and from work every day. For instance, home care/home support workers often must travel long distances to reach clients, resulting in longer than average work hours, particularly those working in rural areas. One issue associated with travel time for home support workers is that compensation for time on the road is not standardized from employer to employer. Some home support workers are fully reimbursed for both travel time from client to client and downtime between clients, while others are not.¹²⁴

6.5.5 Public – Private Competition

Some occupations have been moving into private practice settings. For instance, in 2001, 44% of Nova Scotia's physiotherapists were employed in private settings, up from 28% in 1992.¹²⁵

According to key informants, many physiotherapists moved to the private sector because of downsizing and restructuring in the public sector. Budget constraints resulted in salary levels not keeping pace with the labour market, and employment opportunities were limited to part time. De-insurance of previously covered public insurance for rehabilitation related services was considered to be another driving factor.¹²⁶

120. Human Resource Issues Study, Continuing Care Sector for the Health Care Human Resource Sector Council, 2002 Consensus Report. Wayne Marsh, Gail Boone, December, 2002.

121. Department of Health

122. Nova Scotia Department of Community Services (DCS)

123. LTC facilities

124. Margot Parent (2001). Home Support in Nova Scotia: Implications of a Standard Wage Rate

125. Canadian Physiotherapy Association (CPA) membership statistics, May 2001

126. Key informant interview

In some provinces, there is increasing competition among public and private sectors for medical radiation professionals. The private sector in radiology in Alberta, for instance, offers comparable wages, but usually better working hours and conditions. As a result, Alberta has seen an exodus of diagnostic imaging technologists to the private sector. However, demand in the public sector has not diminished, overburdening employees who remain in the public sector.

Dentistry representatives noted challenges in recruiting faculty due to private sector competition. A key informant suggested that incentives are often not sufficiently attractive to recruit new faculty to the dentistry program, due to differences in earnings potential between private and public sectors.

6.5.6 Professional Development

Beyond formal post-entry education, health care workers have ongoing learning needs. Some health care workers participate in continuing education opportunities as part of their license renewal. Others participate in order to further their careers and keep their skills fresh. Regardless of the reasons, lifelong learning and professional development is a significant factor in retaining productive health care providers.

A common challenge reported by key informants was that employers are becoming less willing and able to grant the time off work (paid or unpaid) for professional development because staff shortages means there is no one available to cover shifts. Occupations reporting this problem included: registered nurses, dietitians, physiotherapists, speech language pathologists and audiologists, medical radiation technologists and occupational therapists.

Finding time to travel and participate in continuing medical education has traditionally been a barrier for physicians, especially for those located in rural areas. With the advent of videoconferencing and computer-based programs, participation in continuing medical education is thought to be increasingly easier for physicians. For instance, the Dalhousie Continuing Medical Education (CME) Unit has introduced a number of online courses, including the Online Short Programs. As well, the Canadian Medical Association offers a variety of user pay CME modules, virtual conferences and a selection of articles and tests for specific specialties.

A challenge mentioned by several occupations was the fact that once entering practice, there are limited career advancement options, or a career ladder, over time. For instance, home support workers and personal care workers reportedly have little opportunity for career laddering within home support agencies and LTC facilities.¹²⁷

There also appears to be limited opportunities for *dental assistants* to advance to related occupations, such as dental hygienist, primarily due to the time and financial commitment involved. Progression from a dental assistant to a dental hygienist requires upgrading to the equivalent completion of 1st year of university, and then applying to the two-year program, leading to a diploma in Dental Hygiene. Currently no formal prior learning assessment is in place at Dalhousie for dental assistants seeking to enroll in the dental hygiene program.

Limited advancement into management positions was noted as a concern for *speech language pathologists*, as the majority work in the field, with less than 10% in management positions.¹²⁸ A similar concern was noted for *dietitians*. Key informants suggested that changes over the last decade related to health care reform have translated into cutbacks in middle management positions, including assistant directors and administrative positions, leaving fewer paths for career advancement.

Occupational therapists suggested that those who become managers, consultants, researchers or educators may no longer retain the title occupational therapist. This was seen as a professional image/identity issue for the profession.

6.5.7 Orientation to Care

A period of orientation is an essential beginning point in all employee/employer relationships. A planned orientation program is essential for health care providers to function safely and competently in new practice settings, to accept new responsibilities, and to assume new roles. Orientation assists the employee to fulfill the employer's expectations for that role and is therefore an important employer responsibility.

For some occupations, such as *speech language pathologists* and *audiologists*, little formal orientation is offered. For others, the extent of orientation programs and practices varies significantly between practice settings and employers.

Feedback from employers hiring new *continuing care assistant* (CCA) graduates was that their employees were requiring more onsite training. Directors of home support agencies have indicated they are spending more time, effort and dollars on new recruits than in the past, in determining how compatible they are with their agency/work setting.¹²⁹ Screening of workers for employment has become problematic for some employers, as they are no longer the primary educator. The Nova Scotia Community College (NSCC) and private career colleges do not routinely screen students for "care qualities" in the same way a home support agency does. This was seen as an important component of recruiting and retaining new CCA graduates.

127. Key informant interview

128. Key informant interview

129. Key informant interview

Nova Scotia has introduced initiatives to improve the orientation of *registered nurses* into the workplace. The Nova Scotia Nursing Strategy provides funding to employers to help cover orientation costs for nurses newly entering the workforce or for those transferring to new positions within the same place of employment. Furthermore, a survey of employers' orientation practices was recently conducted by the NS provincial nursing network, resulting in the drafting of orientation guidelines for employers.

6.5.8 Scopes of Practice

Health care workers' roles are constantly changing. Societal expectations regarding the kinds of services provided (and the health care providers who deliver them), innovations and advances in technology, shortages of health care providers and the economic issues facing the health care system – all of these factors are challenging traditional boundaries of practice for most health care providers.

There is a growing breadth of research in the area of expansion of health care worker roles,¹³⁰ such as that involving the practice of *nurse practitioners* and *midwives*. In a review of research in this area, the *Office of Technology Assessment* in the United States concluded that when practicing in their area of competence, these workers were able to provide primary health care delivery as well as physicians, and in some cases, more cost effectively.¹³¹ Another review of research comparing nurse practitioners and family physicians found that patients were more satisfied with care from a nurse practitioner with no differences in health outcomes.¹³²

In Nova Scotia, there are nurse practitioners practicing under collaborative practice agreements with physicians, to lessen physician workloads and to improve patient access. This role was officially recognized with the introduction of changes to the *Registered Nurses Act* in 2001, which provided formal legislative authority and licensure requirements for nurse practitioners to practice in Nova Scotia.

An increasing role for midwives in the delivery of primary care services in Nova Scotia has been recommended by the Advisory Committee on Primary Health Care Renewal. The Advisory Committee suggested that this could be achieved through the establishment of collaborative practice agreements between midwives and physicians. However, since midwifery is not a regulated occupation in Nova Scotia, there is no legislative

recognition of midwives. Therefore, they are unable to formally establish their scope of practice, ensure protection of title and enforce various quality assurance mechanisms. Furthermore, occupational regulation plays an important role in legitimizing the practice of midwifery to many consumers, governments, third party-insurers and other health care providers.

One reason for the lack of legislation for midwives appears to be an issue of critical mass. Practically, there are too few midwives practicing in Nova Scotia to warrant self-regulation, particularly considering the requirements for establishing disciplinary procedures under self-regulation. Therefore, alternative options for regulation of this profession may need to be considered if this occupation is to take on a greater role in primary care delivery.

In addition to nurse practitioners and midwives, research has noted unrealized potential for expanding roles of other health care providers. For instance, a 1994 Canadian study found evidence that a number of occupations can safely provide expanded roles that are typically provided by health care providers with considerably more training, including licensed practical nurses, dental hygienists, pharmacy technicians, nurse anesthetists and chiropractors.¹³³ Another study found that some of the work performed by rehabilitation professionals, such as audiologists, speech language pathologists, physiotherapists and occupational therapists, could safely be delegated to rehabilitation assistants or technicians.¹³⁴

In Nova Scotia, *licensed practical nurses* (LPNs) are increasingly practicing to the full extent of their education, training and experience. In some settings, their roles have expanded. For instance, LPNs scope of practice recently expanded in the Hemodialysis Unit and in the Transitional Care Unit at the QEII through additional employer training and testing.

Despite these advances, key informants suggested that LPNs are still not being used consistently to their full scope of practice. For instance, some LPNs were allowed to dispense medications in nursing homes but not in hospital settings. Furthermore, LPNs are not employed in some practice settings where they previously worked, such as obstetrics/gynecology in hospitals, and not from working in practice settings they feel enabled to, such as pediatric hospitals.¹³⁵ The College of Licensed Practical Nurses noted the need to educate employers throughout the province regarding the LPNs evolving scope of practice.

130. For a summary of research on Provider Roles and Role Substitution see Building a Stronger Foundation: A Framework for Planning and Evaluating Community-Based Health Services in Canada. Pong, Raymond W., Saunders, Duncan., Church, John., Wanke, Maragaret., Cappon, Paul (1995). Component 1: Health Human Resources in Community-based Health Care: A Review of the Literature. Health Canada...

131. Office of Technology Assessment, 1986. Health technology case study 37: nurse practitioner, physician assistant and certified nurse midwives: a policy analysis (OTA No. 224-8996).

132. Horrocks S et. al. (2002). Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *British Medical Journal*. 324:819-823.

133. Manga, Pran and Campbell, Terry, 1994. Health Human Resources Substitution: A major Area of Reform Towards a More Cost-effective Health Care System. Queen's University – University of Ottawa Economic Projects.

134. Hagler, Paul. 1993. Role and Use of Support Personnel in the Rehabilitation Disciplines. Edmonton, Alberta: Centre for Studies in Clinical Education, Faculty of Rehabilitation 75: 172-176.

135. Key informant

Pharmacy representatives noted unrealized opportunities for greater utilization of pharmacists' knowledge and expertise. The *Romanow Report* made reference to the need for a greater role for pharmacists as a part of the primary health care team, particularly with respect to managing medication in chronic diseases and in home care.¹³⁶ Furthermore, Romanow suggested that in the future there may also be a role for pharmacists who are not engaged in the retail sale of prescription drugs to prescribe certain drugs under specific, limited conditions.

The Nova Scotia College of Pharmacists indicated that in the United States, many states allow some type of collaborative practice agreements in which physicians delegate patient prescriptive rights.¹³⁷ The Nova Scotia government is considering pharmacists' prescriptive authority for emergency contraception. Some non-traditional activities pharmacists may be involved in, as suggested by the College of Pharmacy¹³⁸ included:

- Selecting, initiating, modifying and monitoring patient drug therapy;
- Performing and interpreting laboratory related tests;
- Administering immunizations; and
- Disease management models.

Key informants also noted there was unrealized potential to expand the role of *pharmacy technicians*, particularly in community pharmacy settings. For example, pharmacy technicians are quite advanced in hospital settings, where procedures such as a 'tech-check-tech' system have been used for years. In this system, one technician will fill a prescription and another technician will provide the final check prior to releasing the drug from the pharmacy for use. This frees up the pharmacists' time to focus on screening prescriptions against the patient's health profile, verifying medication orders and providing clinical services.

The practice of pharmacy technicians and assistants is not as developed in community pharmacies. Pharmacy technicians are not covered in the *Pharmacy Act*, and there is no explicit statutory authority for a 'tech-check-tech' system. It should be noted, however, that clause 77(1)(s) of the new *Pharmacy Act* allows regulations regarding "supervised practice and the delegation of any part of the practice of pharmacy and the persons to whom it may be delegated." However, to date, no regulations have been enacted. Furthermore, although the pharmacist may choose to delegate to an assistant, some pharmacists may be reluctant to give their technicians and assistants a wider range of responsibilities for fear of personal liability.¹³⁹

Another emerging trend involves the use of *multi-skilled workers* who are cross-trained to perform procedures and functions in two or more disciplines. For instance, having *medical laboratory technologists* cross-trained in X-ray functions would be particularly relevant in rural areas.¹⁴⁰ Studies on multi-skilled workers have revealed that cost-effectiveness, staff flexibility and efficiency are among the main reasons employer use multi-skilled workers.¹⁴¹ However, there is still an absence of detailed research demonstrating the effectiveness of multi-skilled workers, particularly in community based settings.¹⁴²

Opticians in some provinces have been seeking the authority to do sight testing, a privilege now limited to optometrists. Site testing, or refraction, is "a non-invasive, mechanical process that uses instruments to assess the refractive power required to bring the individual's vision to an acceptable level...the end result of which is a set of numbers that indicates the power of lens(es) required to cause light to come to a point of focus on the retina."¹⁴³

The Canadian Association of Optometrists points out that the source of blurred vision is not always a refractive error. Diseases such as glaucoma, diabetes, mellitus, cataract and macular degeneration may be the cause of blurred vision. Without an eye examination by an optometrist, they note the potential exists for harmful ocular diseases to be overlooked.

Conversely, opticians suggested that people who cannot afford to see an optometrist, or do not wish to go through the appointment protocol and waiting time, may end up 'self-prescribing', by maintaining their current prescription, or buying the wrong prescription, such as reading glasses, available at retail stores. Opticians noted the potential health risk from self-prescribing consumers, who may be postponing personal contact with an eye care professional, until trauma or eye disease becomes a problem.

Another occupational group with a scope of practice-related issue was *dental hygienists*. In Nova Scotia there is a legislative requirement of supervision¹⁴⁴ by a licensed dentist for dental hygiene practice. Although most dental hygienists and dental assistants practice within dentists' offices, the *Dental Act* allows them to provide care outside of a dentists office under

136. See pages xxvii, 106-7, 120, and chapter 9

137. Key informant interview

138. Ibid.

139. Ibid.

140. Health Canada. An Environmental Scan of the Human Resource Issues Affecting Medical Laboratory Technologists and Medical Radiation Technologists, 2001.

141. Building a Stronger Foundation: A Framework for Planning and Evaluating Community-Based Health Services in Canada. Pong, Raymond W., Saunders, Duncan., Church, John., Wanke, Maragaret., Cappon, Paul (1995). Component 1: Health Human Resources in Community-based Health Care: A Review of the Literature. Health Canada.

142. Ibid.

143. Ontario Opticians Association "Frequently Asked Questions about Refractometry."

144. The term 'supervision' is defined in the Regulations as "the dentist is present within the office premises while the licensed dental hygienist engages in the practice of dental hygiene."

'standing orders' of a dentist. This was not a common occurrence, as there were only six institutions where such oral health programs existed.¹⁴⁵

Some dental hygienist organizations contended that independent practice would enhance access to oral health care. A report released by the Canadian Dental Hygienists Association¹⁴⁶ suggests that the traditional 'gatekeeper privileges' of dentists, as outlined in the legislative requirements for supervision, limits public access to dental hygienists care and generates substantial costs to society. The report recommends that provincial governments eliminate regulations that prohibit direct public access to dental hygienists. The rationale is that such a reform would result in:

- Greater access to oral health care for population groups with potentially unmet need for oral health services;
- Potentially lower costs for patients;
- Greater opportunity for integrating oral health care with other health services;
- An increase in the prevention and earlier detection of oral disease, and awareness in oral health promotion;
- Greater equity in income and opportunity between male and female-dominated professions;
- More experimentation and innovation in cost-effective oral health care delivery systems; and
- Greater and genuine freedom of choice for consumers.¹⁴⁷

In British Columbia, dental hygienists are permitted to practice independently in alternative settings without the supervision of a dentist. However, a patient seeing a dental hygienist must have seen a dentist in the previous 365 days. Dentists' concerns with this trend include its potential impact on co-ordinated, integrated oral health care, and the costs that may result, arising from the need to maintain separate equipment and administrative staff.

Among regulated health occupations 'scope of practice' defines the key tasks that workers are legally authorized, by statute and license, to perform. A large portion of services in the continuing care sector are delivered by unregulated health occupations, such as *continuing care assistants* (currently known as *home support workers* and *personal care workers*) and *residential care workers*. Job functions performed by these workers are not specified in occupational legislation. As such, no scope of practice statements are defined in occupational regulation to guide their practice. Rather, their roles and job duties are often described as their 'scopes of employment.'

A 2002 study of human resource issues in continuing care found that unregulated health occupations in this sector work under a myriad of employer policies and practices, and there was variability in workers' autonomy across practice settings and employers. For instance, in some HC/HS settings workers were not permitted to look after clients' practical necessities, such as getting the mail from the end of the driveway or grocery shopping, whereas in other settings they looked after a broad range of clients' personal care needs.¹⁴⁸

The study also noted there were aspects of personal care for which home support workers felt qualified, but were not allowed to perform. Despite having certification in first aid and CPR, in some settings home support workers were not permitted to wash a client's hair, apply/change dressings, use suppositories for bowel movements or remove a band aid.¹⁴⁹ These acts needed to be performed by an LPN or an RN.

The study also noted that RNs in some nursing homes may not be practicing to the full extent of their education and experience. In some cases, nursing home residents were sent to hospital for suture removal, despite having staff in these settings that were trained to remove sutures.

Some occupations spend a substantial amount of time on non-clinical activities outside of their professional scope of practice. For instance, pharmacist representatives indicated they spent too much time on administrative tasks such as phone inquiries to confirm prescriptions, and not enough time advising patients. Although there was no quantifiable data available, representatives estimated pharmacists can spend up to 30% of their time solving administrative issues.¹⁵⁰

Excessive documentation, paperwork, rules and protocols were also mentioned as concerns among people working in continuing care.¹⁵¹ In some employment settings the level of documentation was considered excessive and duplicative, detracting from time spent with clients. Although many suggested that rules and standards in many areas have been good for clients/ residents, others noted the lack of flexibility and strict adherence to rules and protocols was making it much more difficult to get simple things done.

145. Nova Scotia Dental Association and Provincial Dental Board of Nova Scotia

146. "The Political Economy of Dental Hygiene Practice in Canada" by Pran Manga, MHA Program, University of Ottawa

147. Executive Summary "The Political Economy of Dental Hygiene Practice in Canada" by Pran Manga, MHA Program, University of Ottawa

148. Human Resource Issues Study, Continuing Care Sector for the Health Care Human Resource Sector Council, 2002 Consensus Report. Wayne Marsh, Gail Boone, December, 2002.

149. Human Resource Issues Study, Continuing Care Sector for the Health Care Human Resource Sector Council, 2002 Consensus Report. Wayne Marsh, Gail Boone, December, 2002.

150. Key informant interview

151. Human Resource Issues Study, Continuing Care Sector for the Health Care Human Resource Sector Council, 2002 Consensus Report. Wayne Marsh, Gail Boone, December, 2002.

7.0 BRINGING IT TOGETHER – MOVING TOWARDS INTEGRATED HHR PLANNING

6.5.9 Leadership Development

A leadership symposium held in Toronto in 2000, sponsored by the Canadian Council of Health Service Executives, identified a number of key issues relevant to Health Service Executives, with *loss of leadership control* mentioned by 88% of respondents. Leaders in health organizations voiced concern that they have little control over the environments they manage. Factors such as political and government micro-management, the power and influence of unions, the need to focus on 'putting out fires' rather than proactively addressing problems, and increasing public expectations contribute to loss of leadership control.

Leadership development was also mentioned as a priority issue for registered nurses, who regard it as essential to the provision of quality nursing care. RNs demonstrate leadership by: applying their professional standards to ensure accountability for outcomes and evidence-based decision-making; mentoring, empowering and motivating other nurses; applying evidence of best practice to the delivery of services; and helping to establish the conditions necessary for healthy and productive workplaces.

The importance of nursing leadership was evident in research that shows RN leadership behaviors are important to staff retention.¹⁵² Effective leadership styles that empower nurses can also reduce occupational stress and increase work effectiveness.¹⁵³ Research on 'magnet hospitals' has shown that nurse managers in these organizations possess unique leadership characteristics. These leaders:

- Are visionary and enthusiastic;
- Are supportive and knowledgeable;
- Maintain high standards and staff expectations;
- Value education and professional development of all nurses within the organization;
- Hold positions of power and status;
- Are responsive and have open lines of communications with staff nurses; and
- Are involved in professional organizations.¹⁵⁴

Leadership development is a priority for the College of Registered Nurses of Nova Scotia (CRNNS). The CRNNS offers a two-day workshop – *Leadership in Professional Practice* – to enhance RNs' leadership skills. Other leadership-related events that occurred in 2003 included a Leadership Institute, jointly sponsored by the CRNNS, the Department of Health, the Nova Scotia Association of Health Organizations, Dalhousie School of Nursing, the IWK and Capital District Health Authority. The goal of this event was to facilitate leadership development among new graduates, experienced nurses and nurse managers.

Health human resource (HHR) planning is about ensuring health care workers, with the right skills and knowledge deliver health care services, in the right place and at the right time, to care for the health needs of Nova Scotians. Effective health workforce planning is increasingly viewed as becoming critical, given reports of a looming crisis in the numbers of health care workers worldwide available to deliver services.

In many respects, what has been most lacking to date is the absence of good information for HHR planning. Basic information on the numbers and distribution, demographic and employment characteristics, and education and training of health care workers across the province, has been absent for most health occupations. Human resource decisions without sound information can potentially lead to unreliable estimates of current and future human resource needs, and can create the potential for inefficient allocation of resources. This baseline report has taken a step toward improved HHR planning by providing baseline information about the NS health workforce, its education and training, and employment characteristics and human resource issues for future HHR planning.

Another challenge in planning for the future health workforce is that to date there has been no planning framework that integrates HHR planning with the broader forces shaping change in the health care system. HHR planning does not occur in a vacuum. The nature of health care service delivery structures is changing, as are the skills and competencies needed to deliver health care. Environmental factors such as technological advances, demographic changes, regulatory structures, changing public expectations, and economic forces, must also be considered as part of the planning picture.

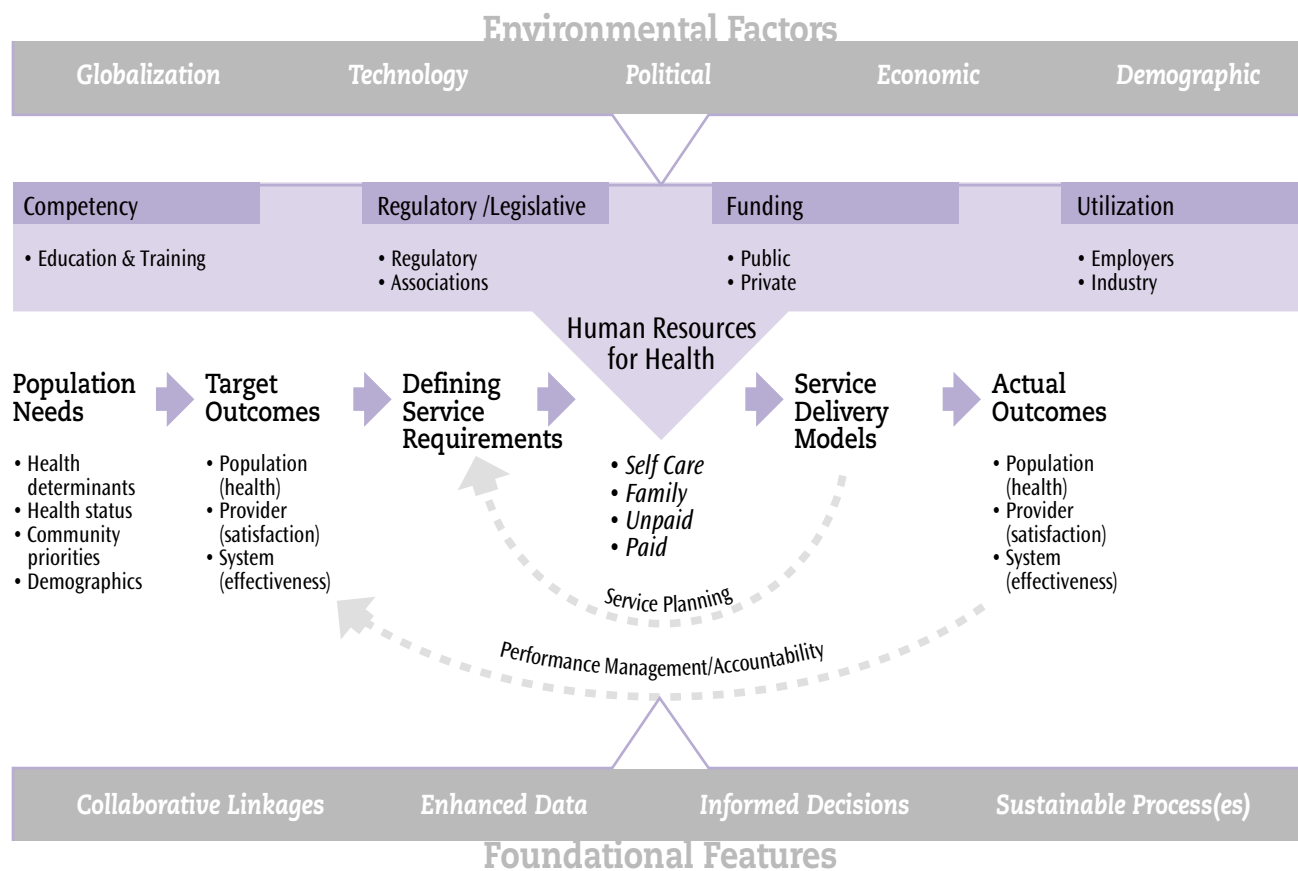
The long-term HHR planning framework conceptualized from this study (Figure 7.1) represents an adaptation of various other HHR planning models that have recently been proposed, as well as the experiential knowledge and learning that resulted from having undertaken the process of this study. It suggests HHR planning should be integrated with broader service delivery and financial planning processes. It assumes planning efforts should be built around health care service needs of the Nova Scotia population and the skills required for delivering them. And service planning for meeting these health needs must utilize the full HR continuum (self care, family, unpaid, paid) of resources.

152. Cullen, K. (1999). "Strong Leaders Strengthen Retention" *Nursing Management* May 27-28.

153. Laschinger, H., Wong, C., McMahon, L., & Kaufman, C. (1999). "Leader Behaviour Impact on Staff Nurse Empowerment, Job Tension, and Work Effectiveness" *Journal of Nursing Administration*, 29 (5). 28.

154. Source: Health Human Resource Planning in Canada: Physician and Nursing Workforce Issues. Canadian Policy Research Networks, Inc. Summary Report prepared for the Commission on the Future of Health Care in Canada 2002.

Figure 7.1: Long Term Health Human Resource Planning Conceptual Framework



7.1 CHALLENGES FOR FUTURE PLANNING

7.1.1 Articulation of Service Delivery Requirements to Guide HR Planning

A critical component required for future human resource planning is the articulation of provincial service delivery requirements within key care settings. At the present time, this is a work in progress at the Department of Health (DOH). Clinical services planning for new models of care, such as primary care, are still in their infancy. Knowing the ‘what’ and ‘how’ of health services will enable the determination of the appropriate competencies/skill sets required to meet our future service needs.

For example, the absence of clearly articulated requirements for future care delivery makes it particularly difficult to guide education planning for the health disciplines. This may help explain why divergent points of view existed among post-secondary institutions concerning which health disciplines should get priority to best meet the province’s health care needs. In the absence of this vision, educational institutions are left to their own devices to determine their enrolments, address funding shortfalls and other capacity related (clinical placements, infrastructure, etc) issues.

7.1.2 Effective Linkages and Co-ordination

The success of planning efforts will depend, to a large extent, on effective co-ordination and linkages among the various stakeholders involved in planning the health workforce at a national, provincial, regional and local level. For HHR planning to be most effective key stakeholders such as regulatory, industry/employers, education and government need to be involved in the planning process. This ensures the often conflicting viewpoints of those affected by plans are fully considered. Unfortunately, in many instances the existing interfaces are fragmented, and some are simply not working too well.

In recent years, a number of provinces have introduced advisory committees and working groups as a way of improving collaboration in ongoing HHR planning activities. The committees, comprised of key stakeholder representatives, serve as a resource to provide proactive advice to government to ensure provincial HHR planning efforts are optimized.

A positive example of such a committee in Nova Scotia is the Provincial Nursing Network. This committee, established in April 2000 to serve as a resource and to provide advice to government,

is comprised of practicing nurses, professional associations, regulatory bodies, employers, unions and educators, among others. Another example is the Continuing Care Education Roundtable (CCER), formed in October 2002 to promote partnerships and bring forward effective leadership within the continuing care sub-sector.

7.1.3 Improving Data and Accountability Measures

As indicated previously, limited information was available on the health workforce in Nova Scotia to support proactive workforce planning. Improving the availability, accessibility, and quality of data on the health workforce in Nova Scotia is therefore essential to the success and sustainability of future HHR planning efforts. The major data-related challenges were outlined in Chapter 1. To ensure ongoing collection and analysis of data for planning, there is a potential leadership role for the DOH to:

- develop an ongoing data collection process and a centralized data repository for HHR, with standardized data elements, definitions and structure;
- maintain confidentiality agreements and a memorandum of understanding with key data stakeholders ensuring full compliance with privacy guidelines;
- establish guidelines for the internal use and external publication of HHR information;
- standardize job criteria to enable consistency and comparability of health occupations across geographic and practice settings;
- standardize education and training data elements, definitions, timing and frequency of data collection;
- conduct ongoing, periodic environmental scanning and labour market analyses and maintaining a qualitative issues data bank to input and inform HHR planning and policy processes;
- interface between educational, regulatory, government and employer/industry stakeholders to collaborate on HHR strategies and best practices to inform planning, policy, and accountability frameworks.

7.2 NEXT STEPS - WHERE TO FROM HERE?

This report provides a baseline picture of HHR in Nova Scotia - the number, mix and distribution of people working in each health occupation and health care setting; education and training programs and statistics; key workforce demographic, education and employment characteristics, and key HHR management related information such as workplace injury and illness. The report also highlights the key priority HHR issues from various dimensions. A better understanding of the key HR priority factors affecting each health occupation will enable the development of better response strategies for planning, producing and managing our human resources for health.

Proposed activities for completing this study include:

- Examining occupational requirements (focusing on short term) for HHR planning;
- Conducting a gap analysis and identifying options;
- Providing recommendations for future HHR planning;
- Disseminating study findings and results; and
- Providing assistance to the DOH with integration of data and set up of processes to enhance HHR planning.

CONTRIBUTING CONTACTS

EDUCATION/TRAINING

- Dr. Joy Armson, Director, School of Communication Disorders, Dalhousie
Dr. Wanda Thomas Bernard, Director, Maritime School of Social Work, Dalhousie
Dr. Richard Brown, Chair, Department of Psychology, Dalhousie
Ms. Elizabeth Buffett, Professor and Chair, Department of Nursing, Joint UCCB/StFX Nursing Program
Ms. Glenda Butt, Assistant Professor, School of Dental Hygiene, Dalhousie
Dr. Rita Caldwell, Director, College of Pharmacy, Dalhousie
Dr. Vic Catano, Professor and Chairperson, Department of Psychology, SMU
Ms. Jane Palmer Cayford, Registrar, Acadia
Dr. Elizabeth Chard, Registrar, SMU
Mr. Brian Christie, Executive Director, Department of Economics/Institutional Affairs, Dalhousie
Dr. Susan Clarke, Senior Executive Director, Higher Education & Adult Learning, DOE
Dr. Joanne Clovis, Professor, School of Dental Hygiene, Dalhousie
Ms. Deanne Dennison, Registrar, Dalhousie
Ms. Pam Dimock, Assistant Registrar, Acadia
Mr. Patrick Donahoe, Registrar, Academic Services, NSCC
Dr. Barbara Downe-Wamboldt, Director, School of Nursing, Dalhousie
Ms. Sue Drapeau, Manager, Institutional Research & Analysis, NSCC
Ms. Alison C. Edwards, Director of Finance, Faculty of Medicine, Dalhousie
Mr. Greg Ells, NS Advisory Board on Colleges and Universities, DOE
Dr. Angela Gillis, Professor, Department of Nursing, StFX
Ms. Dawn Gordon, Research Officer, MPHEC
Dr. Frances M. Gregor, Associate Professor, School of Nursing, Dalhousie
Ms. Mary Ellen Gurnham, VP Professional Practice & Chief Nursing Officer, CDHA
Dr. Heather Hemming, School of Education, Acadia
Mr. John Hubert, Professor and Director, School of Health Sciences, Dalhousie
Mr. Winston Jackson, Institutional Analyst, StFX
Ms. Brenda Jacono, Professor, Department of Nursing, Joint UCCB/StFX Nursing Program
Mr. Ron Johnson, Academic VP, StFX
Dr. Elizabeth Johnston, School of Nutrition and Dietetics, Acadia
Ms. Rosemary Jotcham, Registrar, Acadia
Ms. Marilyn Kinnear, Professor, School of Dental Hygiene, Dalhousie
Dr. Paul LaFleche, VP Academic, NSCC
Dr. Lori Livingston, Director, School of Health and Human Performance, Dalhousie
Ms. Lynn MacDonald, Associate Registrar, Office of the Registrar, Dalhousie
Dr. Noni MacDonald, Dean of Medicine, Dalhousie
Ms. Ellen MacFarlane, Professor and Chair, Department of Nursing, StFX
Dr. William MacInnis, Dean, School of Dentistry, Dalhousie
Ms. Marlene MacLellan, Project Manager, Continuing Care, NSCC
Dr. Lydia Makrides, Director, School of Physiotherapy, Dalhousie
Ms. Alexis Manley, Registrar, UCCB
Ms. Linda Mann, Chair/Associate Professor, Department of Applied Human Nutrition, MSVU
Dr. Patrick McGrath, Coordinator of Clinical Psychology, Dalhousie
Dr. Lynn McIntyre, Dean, Faculty of Health Professions, Dalhousie
Ms. Mylene Michaud, Database Administrator, MPHEC
Ms. Terry Mitchell, Professor, School of Dental Hygiene, Dalhousie
Dr. Marian Naczka, Professor and Chair, Department of Human Nutrition, StFX
Dr. Gary Ness, Director, School of Recreation Management and Kinesiology, Acadia
Dr. Ed Pencer, Professor, Department of Psychology, StFX
Dr. Peter Rans, Director Program/Policy, DOE
Dr. Roy Rasmussen, Chair, Department of Human Kinetics, StFX
Dr. Tom Rathwell, Director, Health Services Administrator, Faculty of Health Professions, Dalhousie
Ms. Pam Reid, Dean of Health and Human Services, NSCC
Dr. John Ruedy, VP Academic Affairs, QEII Health Sciences Centre
Dr. Elizabeth Townsend, Director, School of Occupational Therapy, Dalhousie
Dr. George Turnbull, School of Physiotherapy, Dalhousie
Dr. Sam Scully, VP Academic and Provost, Dalhousie
Dr. Jerry Singleton, Professor, School of Health and Human Performance, Dalhousie
Mr. Norm Smith, Registrar, UCCB
Ms. Krista Spurr, HR Research Associate, Human Resources, NSCC
Ms. Janet Stark, Registrar, StFX
Dr. Sonya Symons, Department Head, Department of Psychology, Acadia
Dr. Janette Taper, Department of Applied Human Nutrition, MSVU
Ms. Lynn Theriault, Registrar, MSVU
Dr. Anita Unruh, Associate Professor and Acting Director, School of Occupational Therapy, Dalhousie
Dr. William Wrixon, Professor of Obstetrics & Gynaecology/Postgraduate Medical Education, Dalhousie

REGULATORY BODY/ASSOCIATIONS MEETINGS/CONSULTATIONS

Mr. Wayne Banfield, N.S. Dental Technicians' Association
Mr. Harold Beals, Executive Director, N.S. Association of Social Workers
Catherine Berry, Midwifery Coalition of N.S.
Dr. Donald Bonang, Registrar, Provincial Dental Board of N.S.
Ms. Michelle Brennan, Professional Practice and Policy Consultant,
College of Registered Nurses of Nova Scotia
Mr. Tom Burlock, Burlock Optical Services
Dr. Gordon Butler, Association of Psychologists of N.S.
Dr. Ed Cain, Provincial Medical Director, EHSNS
Ms. Janis Wood Catano, Midwifery Coalition of N.S.
Mr. Doug Clarke, CEO, Nova Scotia Medical Society
Ms. Annette Dionne, President, N.S. Society of Occupational Therapists
Ms. Wanda Fedora, RDH, President, N.S. Dental Hygienists' Association
Ms. Kathy Grandy, N.S. Association of Medical Radiation Technologists
Ms. Pamela Gunter, Director, Human Resources, EHSNS
Mr. Chris Halfyard, President, Massage Therapists' Association of Nova
Scotia
Ms. Linda Hamilton, Manager, Professional Services, College of
Registered Nurses of Nova Scotia
Ms. Carrie Harlow, President, Association of N.S. Midwives
Ms. Heather Henderson, President, Nova Scotia Nurses Union
Ms. Crystal Hilton, President Nova Scotia Society of Diagnostic Medical
Sonographers
Ms. Brenda Hubley, N.S. Association of Medical Radiation Technologists
Dr. Carolyn Humphreys, Ph.D., N.S. Board of Examiners in Psychology
Ms. Judy Jenkins, Regional Director, Atlantic Canada, Dietitians of Canada
Mr. Patrick King, Executive Director, Pharmacy Association of Nova Scotia
Ms. Rebecca King, N.S. Society of Occupational Therapists
Ms. Annette Knight, Chair, N.S. Board of Dispensing Opticians
Ms. Heather Kugler, Registrar, Denturist Licensing Board of N.S.
Ms. Debra Leigh, CEO, Continuing Care Association of N.S.
Dr. Cameron Little, Registrar, College of Physicians and Surgeons of N.S.
Mr. Bill Lloy, President, Denturist Society of N.S.
Mr. Brian MacDougall, Health Services Executives
Mr. Albert MacIntyre, Deputy Registrar, Continuing Competencies &
Education, College of Licensed Practical Nurses of N.S.
Dr. Wanda Lee MacPhee, N.S. College of Chiropractors
Ms. Ann Mann, Executive Director Registrar, College of Licensed Practical
Nurses of N.S.
Ms. Janet Manuel, President, N.S. Health Records Association
Mr. Brian Martel, President, N.S. Association of Medical Radiation
Technologists
Dr. Judy Martin, N.S. Association of Optometrists
Mr. Paul Martin, Physiotherapy Department, Dartmouth General Hospital
Mr. Peter McLardie, School of Diagnostic Medical Ultrasound Technology,
QE II Health Sciences Centre/Dalhousie University School of Health
Sciences
Ms. Joan McLeod, N.S. Society of Medical Laboratory Technologists
Ms. Carolyn Moore, Executive Director, College of Registered Nurses of
Nova Scotia
Dr. Don Pamerter, N.S. Dental Association
Ms. Natalie Penny, President, N.S. Dental Assistants Association

Mr. Phil Richardson, President, Respiratory Therapists' Society of N.S.
Ms. Joan Ross, Executive Director, N.S. College of Physiotherapists
Ms. Gayle Salsman, Registrar, College of Occupational Therapists
Ms. Katherine Side, Midwifery Coalition of N.S.
Ms. Patty Simpson, Chairperson, Board of Directors of the N.S. Dietetic
Assoc.
Ms. Karen Slaunwhite, Home Support N.S. Association
Ms. Charlotte Smith, Canadian Health Records Association
Mr. Eugene Smith, Co-President, N.S. Society of Medical Laboratory
Technologists
Ms. Kathlyn Smith, Speech Hearing Association of N.S.
Ms. Tara Smith, N.S. Recreational Professionals in Health
Ms. Joy Stevens, CHE, Chair, Canadian College of Health Services
Executives, Bluenose Chapter
Ms. Catherine Swindell, Canadian Health Records Association
Ms. Rilda Van Figgelen, MA, N.S. Board of Examiners in Psychology
Ms. Crystal Watson, Atlantic Canadian Society, Certified Therapeutic
Recreation Society
Ms. Susan Wedlake, President, N.S. College of Pharmacists
Mr. Wade Were, CHE, Past Chair, Canadian College of Health Services
Executives, Bluenose Chapter
Dr. Bruce Wright, President, Medical Society of N.S.

INDUSTRY – ASSOCIATIONS, EMPLOYERS, GOVERNMENT , LABOUR, OTHER

Stephanie Adams, Dalhousie University
Carol Amaratunga, Maritime Centre of Excellence for Women's Health
Diane Anderson, Nova Scotia Cancer Centre
Rick Anderson, N.S. Department of Health
Kimberley Aselstine, IWK Grace Centre
Ian Bower, N.S. Department of Health
Devin Broome, Capital District Health Authority
Janet Braunstein-Moody, N.S. Department of Health
Janet Bray, N.S. Department of Community Services
Jane Breckenridge, N.S. Department of Health
Barb Burley, N.S. Department of Community Services
Rick Cameron, N.S. Department of Health
Dr. John Campbell, N.S. Department of Health
David Chadwick, N.S. Department of Health
Kaireen Chaytor, Chaytor Consulting Services Ltd.
David Chown, Canadian Association of Chain Drug Stores
Robert Cook, Nova Scotia Association of Health Organizations
Krista Connell, Nova Scotia Health Research Foundation
Dr. Linda Courey, Cape Breton Health Care Authority
Steven Curry, District Health Authority # 4, 5, 6
Nicole Deveau, Workers' Compensation Board
Donna Dill, N.S. Department of Health
Cheryl Doiron, N.S. Department of Health
John Dow, Provincial Health Council
Gary Earles, District Health Authority #4, 5, 6 & IWK Health Centre
Robert Fitzner, N.S. Department of Health
Anne Marie Fitzpatrick, N.S. Department of Health
Patrick Flinn, CEO District Health Authority, # 6

Dorothy Forse, N.S. Department of Health
 Greg Gammon, N.S. Department of Community Services
 Ken Garland, Cape Breton District Health Authority
 Catherine Gaulton, N.S. Department of Justice
 Angie Gillis, Capital District Health Authority
 Gary Glessing, N.S. Department of Health
 Victoria Goldring, N.S. Department of Health
 Sarah Gorelick, N.S. Department of Justice
 Patricia Griffith, Statistics Canada
 Jim Guild, Nova Scotia Government Employees Union
 Gary Hartlin, Human Resources Development Canada
 Soili Helppi, N.S. Department of Health
 Florence Hersey, N.S. Department of Health
 Dean Hirtle, N.S. Department of Health
 Dennis Holland, N.S. Department of Health
 Allan Horsburgh, N.S. Department of Health
 Eleanor Hubbard, N.S. Department of Health
 Dr. Keith Jackson, N.S. Department of Health
 Joan Jessome, Nova Scotia Government Employees Union
 Ian Johnson, Nova Scotia Government Employees Union
 Desmond Jones, N.S. Department of Health
 Pam Jones, N.S. Department of Health
 Michael Joyce, N.S. Department of Health
 Dr. Janice Keefe, Mount Saint Vincent University
 Sister Marie Kelly, Cape Breton Healthcare Complex
 Dr. Nuala Kenny, Dalhousie University
 George Kephart, Dalhousie University
 Sarah Kramer, N.S. Department of Health
 Rosemary Landry, Landry & Associates
 Conrad LeBlanc, CML Consulting
 Susan Logue, N.S. Department of Health
 Carolyn MacDonald, Nova Scotia Association of Health Organizations
 Neil MacEachern, Cape Breton District Health Authority
 Carrie MacIsaac, District Health Authority # 7
 James MacLellan, Cape Breton District Health Authority # 8
 Mitch MacNutt, Consultant
 Patrick Mahaux, Human Resources Development Canada
 John Malcolm, CEO, Cape Breton District Health Authority # 8
 Rick Manuel, N.S. Department of Health
 Wayne Alan Marsh, Independent Facilitation Services
 Bruce McCharles Nova Scotia Association of Health Organizations
 Karen McDuff, N.S. Department of Health
 Maureen McInerney, Consultant
 Sue McKeage, N.S. Department of Health
 Susan McLeod, N.S. Department of Health
 Dean McNeill, Artworks
 Karen Meaney, N.S. Department of Health
 Dr. Jim Millar, N.S. Department of Health
 Barb Murray, Council of Atlantic Premiers
 Dr. Jock Murray, Dalhousie University
 Suellen Murray, N.S. Department of Health
 Mike Musial, CGI Information Systems and Management Consultants
 Julie Nadeau, N.S. Department of Health
 Bark Oke, N.S. Department of Health
 Lynn Parker, N.S. Department of Community Services
 Linda O'Brien Pallas, University of Toronto

Karen Parent, Queen's University, Kingston, Ontario
 Margot Parent, Nova Scotia Association of Health Organizations
 Helen Patriquin, Nova Scotia Association of Health Organizations
 Mike Pennock, Dalhousie University
 Leslie Poirier, N.S. Health Research Foundation
 Linda Penny, N.S. Department of Health
 Frank Peters, N.S. Department of Health
 Rheal Poirier, Council of Atlantic Premiers
 Marilyn Pothier, District Health Authority, # 1, 2, 3
 Lynn Purchase, N.S. Department of Health
 Byron Rafuse, N.S. Department of Health
 Frank Reinhardt, N.S. Department of Health
 Dr. David Rippey, N.S. Department of Health
 Laurel Rocky, District Health Authority # 4, 5, 6
 Dr. Alan Ruth, Consultant to N.S. Department of Health
 Evelyn Schaller, Cape Breton Healthcare Complex
 John Sell, Consultant
 Linda Smith, N.S. Department of Health
 Richard Starr, Acorn Communications
 Joy Stevens, Capital District Health Authority
 Jill Strachen, CIHI
 Brian Taylor, N.S. Department of Health
 Dorothea Teasdale, Cape Breton District Health Authority
 Cheryl Thompson, N.S. Department of Community Services
 Gail Tomblin-Murphy, Dalhousie University
 Bill Twaddle, N.S. Department of Health
 Ruth Vaughn, N.S. Department of Health
 Phil Veinot, Nova Scotia Association of Health Organizations
 Maxine Wallace, N.S. Department of Health
 Dr. Thomas Ward, N.S. Department of Health
 Wade Were, N.S. Department of Health
 Jim Wentzell, Nova Scotia Association of Health Organizations
 Roger Whidden, Whidden Systems
 Bev Wicks, Regional Residential Services Society
 Brian Wilbur, N.S. Department of Health
 Annette Wright, N.S. Department of Health
 Anne Yuill, VON

Our apologies to those facilities, agencies and associations that contributed to this study where we have failed to mention by individual name (e.g. nursing homes, home support agencies, community based options, residential care facilities, adult residential centres, workshops, etc.).

BIBLIOGRAPHY

- Acadia University. *Graduate Program-Psychology Department*. [Electronic Version]. Retrieved July 31, 2002 from <http://ace.acadiau.ca/science/psyc/GRAD/Home.htm>
- Acadia University. *Graduate Studies Calendar 1997-98 Education*. [Electronic Version]. Retrieved May 15, 2002 from <http://www.acadiau.ca/registrar/graduate/d&pintro/educ.htm>
- Acadia University. *Division of Continuing and Distance Education*. [Electronic Version]. Retrieved May 15, 2002 from <http://www.distancestudies.com/profile.cfm?ArtID=1849&level=2>.
- Acadia University. *Master of Education (Counselling)*. [Electronic Version]. Retrieved May 20, 2002 from http://ace.acadiau.ca/fps/educ/Main/Programs/Graduate/Programs/MEd.Counselling/MEd_Counselling.htm
- Acadia University. (n.d.) *Master of Recreation Degree Program*. [Electronic Version]. Retrieved July 30, 2002 from http://ace.acadiau.ca/fps/srmk/masters/main_home.htm
- Acadia University. (n.d.) *School of Education: Certificate in Counselling*. [Electronic Version]. Retrieved July 31, 2002 from <http://www.acadiau.ca/registrar/calendar/programs/pro/educ.htm>
- Acadia University. (n.d.) *School of Nutrition and Dietetics*. [Electronic Version]. Retrieved May 15, 2002 from <http://www.acadiau.ca/registrar/calendar/programs/pureapp/food.htm>
- Acadia University. (n.d.) *School of Recreation Management and Kinesiology*. [Electronic Version]. Retrieved May 21, 2002 from <http://www.acadiau.ca/registrar/calendar/programs/pro/recphys.htm>
- Acadia University. (n.d.) *Psychology Undergraduate Program*. [Electronic Version]. Retrieved July 31, 2002 from <http://ace.acadiau.ca/science/psyc/undergrad/Home.htm>
- Acadia University. (n.d.) *University Calendar 2002-2003, Degrees, Diplomas & Certificates*. [Electronic Version]. Retrieved May 15, 2002 from <http://www.acadiau.ca/registrar/calendar/programs/introdeg.htm>
- Acadia University. (2000). *Graduate Studies Calendar 2000-2001*. Wolfville, Nova Scotia: Author.
- Acadia University. (2001). *Graduate Studies Calendar 2001-2002*. Wolfville, Nova Scotia: Author.
- Achilles, R., Casey, J., de Bruyn, T., Picherack, F., Tataryn, Thorne, S., & Verhoef, M. (2001). *Perspectives on Complementary and Alternative Health*. Ottawa, Ontario: Health Canada.
- Advisory Group on Complementary and Alternative Health Care. (n.d.) *Towards An Integrative Health System*. Ottawa, Ontario: Health Canada.
- Agnew, T. J. (2001). *Down equality street*. [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/recruit10.htm>
- Alberta Health & Wellness. (n.d.) *Best Practices: A Report of the Review of Health Authorities*. [Electronic Version]. Retrieved January 17, 2002 from <http://www.health.gov.ab.ca/public/document/bestprac.htm>
- Alberta Health and Wellness. (n.d.) *Information and Data Standards: Health Information Standards Definition and Approval Process Working Document: Version 1.0*. Government of Alberta Queen's Printer.
- Alberta Health & Wellness. (2000). *Alberta's Health System: Some Performance Indicators*. Government of Alberta Queen's Printer.
- Alberta Health & Wellness. (2000). *A Literature Review on Health Workforce Performance Indicators*. Government of Alberta Queen's Printer.
- Alberta Health and Wellness. (2001). *A framework for Reform: Report of the Premier's Advisory Council on Health*. Edmonton Alberta. Government of Alberta Queen's Printer.
- Alberta Rural Physician Action Plan. (2001). *Retention of Rural Physicians*. Edmonton, Alberta: Author.
- Allied Health Human Resource Planning Subcommittee. (2000). *Allied Health Supply Report*. Government of Newfoundland and Labrador.
- Allon, R., & Service, J. (1999). *Strengthening Medicare: The Role of Psychology in the Health of Canadians and in the Development of the Canadian Health Care System*. Ottawa, Ontario: Canadian Psychological Association.
- American Therapeutic Recreation Association. (n.d.) *Recreational Therapy: A Cost-Beneficial Option*. [Electronic Version]. Retrieved November 14, 2002 from <http://www.atra-tr.org/benefitscost.htm>
- American Therapeutic Recreation Association. (n.d.) *Recreational Therapy: An Integral Aspect of Comprehensive Healthcare*. [Electronic Version]. Retrieved November 14, 2002 from <http://www.atra-tr.org/benefitsintegral.htm>
- American Therapeutic Recreation Association. (n.d.) *Summary of Health Outcomes in Recreation Therapy*. [Electronic Version]. Retrieved November 14, 2002 from <http://www.atra-tr.org/benefitshealthoutcomes.htm>
- Anderson, M. & Parent, K. (1999). *Putting a Face on Home Care. CARP's Report on Home Care in Canada*. 1999. Kingston, Ontario: Queen's University.

- Angus Reid Group. (2000). *Public Perceptions Regarding Health Research Final Report*. Ottawa, Ontario: Canadian Institute of Health Research.
- Armstrong, P. & Armstrong, H. (2001). *Thinking it Through: Women, Work and Caring in the New Millennium: A Paper prepared for Healthy Balance: A community Alliance for Health Research on Women's Unpaid Caregiving*. Presentation.
- Armstrong, P. & Armstrong, H. (2002). *Planning for Care: Approaches to Health Human Resource Policy and Planning*. Discussion Paper. No. 28. Ottawa, Ontario: Commission on the Future of Health Care In Canada.
- Armstrong, P., & Kitts, O. (2001). *One Hundred Years of Caregiving*. Ottawa, Ontario: Law Commission of Canada.
- Ashley, S.M. (2001). *Decision: Between, Nova Scotia Government and General Employees' Union and Nova Scotia Nurses Union and Province of Nova Scotia, as Agent for Certain Health Care Employers*. Halifax, Nova Scotia.
- Assessment Strategies Inc. (n.d.) *Licensure Testing in Canada*. [Electronic Version]. Retrieved February 20, 2003 from www.allincept.org/bulletins/licensuretesting.pdf.
- Association of Canadian Medical Colleges. (2001). *Strategic Planning for a Sustainable System of Health in Canada*. Brief to the Commission on the Future of Health Care in Canada. Ottawa, Ontario: Author.
- Association of Universities and Colleges of Canada. (1996). *Trends: The Canadian University in Profile*. Ottawa, Ontario: Author.
- Association of Universities and Colleges of Canada. (1999). *Trends: The Canadian University in Profile*. Ottawa, Ontario: Author.
- Association of Universities and Colleges of Canada. (2002). *Trends in Higher Education*. Ottawa, Ontario: Author.
- Association of Workers' Compensation Boards of Canada. (2002). *Shared Responsibility: Workers' Compensation and the Future of Health Care in Canada*. A Submission from the Association of Workers' Compensation Boards of Canada to the Commission on the Future of Health Care in Canada. Mississauga, Ontario: Author.
- Atkinson, A., & Hull, S. (2001). *Health Human Resources Supply and Demand Analysis. Final Report*. Charlottetown, Prince Edward Island. DMR Consulting Inc.
- Australian Medical Workforce Advisory Committee. (1998). *Medical Workforce Supply and Demand in Australia: A Discussion Paper*. North Sydney, NSW: Author.
- Bach, S. (2000). *HR and New Approaches to Public Sector Management: Improving HRM Capacity*. Workshop on Global Health Workforce Strategy, Annecy, France, 9-12.
- Barer, M.L., & Webber, W.L. (1999). *Immigration and Emigration of Physicians to/from Canada*. Vancouver, British Columbia. University of British Columbia, Centre for Health Services and Policy Research.
- Baseline Market Research Ltd. (1998). *Survey of 1996 University Graduates in Atlantic Canada*. Fredericton, New Brunswick. Maritime Provinces Higher Education Commission.
- Baseline Market Research Ltd. (1996). *Survey of 1995 University Graduates*. Fredericton, New Brunswick. Maritime Provinces Higher Education Commission.
- Battrum, D. (2001). *A Wake-Up Call to CDA and Provincial Regulatory Bodies*. [Electronic Version] *Journal of the Canadian Dental Association* (67) 314-5. Abstract retrieved June 25, 2001 from <http://www.cda-adc.ca/jcda/vol-67/issue-6/314.html>.
- Baumann, A., & O'Brien-Pallas, L., Armstrong-Stassen, M., Blythe, J., Bourbonnairs, R., Cameron, S., et al. (2001). *Commitment and Care: The benefits of a healthy workplace for nurses, their patients and the system*. Ottawa, Ontario: Canadian Health Services Research Foundation & The Change Foundation.
- Blendon, R.J., Schoen, C., Donelan, K., Osborn, R., DesRoches, C.M., Scoles, K., et al. (2001). "Physicians' Views on Quality of Care: A five-Country Comparison" [Abstract]. *Health Affairs- May/June 2000* 233-243.
- Bloor, K. & Maynard, A. (2003). *Planning Human Resources in health care: towards an economic approach. An international comparative review*. Retrieved from <http://www.chrsf.ca> n.d.
- Boomer, R. (1999). *Burnout plagues volunteers*. [Electronic Version]. *The Daily News*, Saturday, May 1, 1999. Retrieved February 8, 2002 from http://www.gpiatlantic.org/mc_burnout.shtml
- Bornais, S. (1998). *Volunteers R Us: Nova Scotians lead the nation in helping others*. [Electronic Version]. *The Daily News* July 15, 1998. Retrieved February 8, 2002 from http://www.gpiatlantic.org/mc_volrus.shtml.
- Brown, L., Dill, D., Hardy, G., Helppi, S., & Were, W. (2000). *A Review of the Utilization of Nursing Home Beds*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Brownrigg I., & Potter P. (2001). "Appoint well made". [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/rr8.htm>
- Buchan, J. (2000). "Planning for change: developing a policy framework for nursing labour markets" [Abstract]. *International Nursing Review*, 47 199-206.

- Buchan, J. (2001). "Happy landings?" [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/happy.htm>
- Buchan, J. (2001). "Pressure is on". [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/pressure.htm>
- Buchan, J., & Edwards, N. (2000). "Nursing numbers in Britain: the argument for workforce planning". London, England: *BMJ* v.320 1067-1070.
- Buske, L., & Strachan, J. (2000). *Medical Workforce and Policy Update-Canada*. 5th International Medical Workforce Conference. Sydney, Australia.
- Butler, Gordon. (n.d.) *Relationship Between NSBEP and other Organizations*. [Electronic Version]. Retrieved May 19, 2001 from <http://www3.ns.sympatico.ca/nsbep/art1.htm>
- Canada's Association for the Fifty-Plus. (2001). *CARP's Report Card on Home Care in Canada August 2001*. Toronto, Ontario: Author.
- Canadian Alliance of Physiotherapy Regulators. (2000). *Annual Report*. Toronto, Ontario: Author.
- Canadian Alliance of Physiotherapy Regulators. (2000). *Licensure Testing in Canada*. Toronto, Ontario: Author.
- Canadian Alliance of Physiotherapy Regulators. (2000). *National Guidelines for Support Workers in Physiotherapy Practice in Canada*. Toronto, Ontario: Author.
- Canadian Alliance of Physiotherapy Regulators. (2000). *Occupational Group-Physiotherapists*. Toronto, Ontario: Author.
- Canadian Alliance of Physiotherapy Regulators and the Canadian Physiotherapy Association. (2002). *Physiotherapy Health Human Resources. Background Paper*. Submitted to Health Canada, Health Human Resource Strategies Division.
- Canadian Association of Chain Drug Stores. (2001). *Canada Short Over 2,000 Pharmacists*. Media Release. Toronto, Ontario: Author.
- Canadian Association of Chain Drug Stores. (2001). *Chain Pharmacy and Canada's Changing Health Care System*. Toronto, Ontario: Author.
- Canadian Association of Chain Drug Stores. (2001). *State of the Industry*. Toronto, Ontario: Author.
- Canadian Association of Chain Drug Stores/Ipsos-Reid. (2002). *Pharmacist Shortages: A warning Signal for Canadians (Wave II)*. Toronto, Ontario: Author.
- Canadian Association of Medical Radiation Technologists. (1996). *Summary of Clinical Competence: Radiation Therapy*. Ottawa, Ontario: Author.
- Canadian Association of Medical Radiation Technologists. (1997). *Summary of Clinical Competence: Radiological Technology*. Ottawa, Ontario: Author.
- Canadian Association of Medical Radiation Technologists. (2000). *Human Resource Planning Issues Affecting Radiation Therapists*. Ottawa, Ontario: Author.
- Canadian Association of Medical Radiation Technologists. (2001). *The CAMRT: History, Philosophy and Code of Ethics*. Ottawa, Ontario: Author.
- Canadian Association of Medical Radiation Technologists. (2001). *Certification Candidates' Handbook*. Ottawa, Ontario: Author.
- Canadian Association of Occupational Therapists. (1996). "Profile of Occupational Therapy Practice in Canada". *Canadian Journal of Occupational Therapy* 63(2) 79-95.
- Canadian Association of Optometrists. (n.d.) *Career Information: Optometric Assistants*. [Electronic Version retrieved June 14, 2002 from <http://www.opto.ca/careerinfo/oac.asp>.
- Canadian Association of Optometrists. (n.d.). *The Optometrist and Health Care Delivery in Canada*. Ottawa, Ontario: Author.
- Canadian Association of Optometrists. (2001). *Insight - Vision for the Future of Health Care in Canada*. Ottawa, Ontario: Author.
- Canadian Association of Social Workers. (1998). *CASW Position Statement on Multiskilling*. Ottawa, Ontario: Author.
- Canadian Association of Speech-Language Pathologists and Audiologists. (n.d.) *Results of CASLPA's 1991 Salary Survey*. [Electronic Version]. Retrieved July 25, 2001 from <http://www.caspla.ca/english/careers/salary.htm>
- Canadian Association of Speech-Language Pathologists and Audiologists. (n.d.) *Results of CASLPA's 2001 Salary Survey*. [Electronic Version]. Retrieved July 25, 2001 from <http://www.caspla.ca/english/careers/salary.asp>.
- Canadian Association of Speech-Language Pathologists and Audiologists. (1999). *Assessing and Certifying Clinical Competency: Foundations of Clinical Practice for Audiology and Speech-Language Pathology*. Ottawa, Ontario: Author.
- Canadian Chiropractic Association. (n.d.) *Clinical Guidelines for Chiropractic Practice in Canada*. [Electronic Version]. Retrieved June 19, 2001 from <http://www.ccachiro.org/client/CCA/CCAWeb.nsf/web/15Chapter?OpenDocument>.

- Canadian Chiropractic Association. (n.d.) *Discovery and Evolution*. [Electronic Version]. Retrieved June 19, 2001 from <http://www.ccachiro.org/client/CCA/CCAWeb.nsf/web/Discovery?OpenDocument>.
- Canadian Chiropractic Association. (n.d.) *History of Chiropractic in Canada*. [Electronic Version]. Retrieved June 19, 2001 from <http://www.ccachiro.org/client/CCA/CCAWeb.nsf/web/Introduction?OpenDocument>.
- Canadian Chiropractic Association. (n.d.) *Number of Licensed Chiropractors, by Province on January 1st by year*. [Electronic Version]. Retrieved March 5, 2002 from: <http://www.ccachiro/Number+of+licenses+chiropractors+in+Canada?OpenDocument>.
- Canadian Chiropractic Association. (n.d.) *The Philosophy of Chiropractic*. [Electronic Version]. Retrieved June 19, 2001 from <http://www.ccachiro.org/client/CCA/CCAWeb.../ThePhilosophyofChiropractic?OpenDocument>.
- Canadian Chiropractic Association. (n.d.) *Profile of Chiropractors in Canada*. [Electronic Version]. Retrieved June 19, 2001 from <http://www.ccachiro.org/client/CCA/CCAWeb.nsf/web/ProfileofChiropractors?OpenDocument>.
- Canadian Chiropractic Association. (n.d.) *Studying in Canada*. [Electronic Version]. Retrieved June 19, 2001 from <http://www.ccachiro.org/client/CCA/CCAWeb.nsf/web/StudyingInCanada?OpenDocument>.
- Canadian College of Health Service Executives. (2001). *Health Systems Update 1999-2000 (7th ed)*. Ottawa, Ontario: Author.
- Canadian College of Health Service Executives. (2001). *The Leadership Imperative. Clarity, Consistency and Collaboration Required*. Submission to the Commission on the Future of Health Care In Canada. Ottawa, Ontario: Author.
- Canadian College of Health Service Executives. (2001). *A New Millennium - a New Decade*. Ottawa, Ontario: Author.
- Canadian Council on Health Services Accreditation. (2001). *Submission to: The Commission on the Future of Health Care In Canada*. Ottawa, Ontario: Author.
- Canadian Council on Integrated Healthcare. (2001). *Submission to the Commission on the Future of Health Care In Canada*. Canadian Council on Integrated Healthcare.
- Canadian Dental Assistants Association. (n.d.) *About the CDA*. [Electronic Version]. Retrieved May 25, 2001 from <http://www.cdaa.ca/en/about/obj.asp>.
- Canadian Dental Association. (n.d.) *The DeFries and Barker3 paper classification system*. [Electronic Version]. Retrieved May 25, 2001 from <http://www.cad-adc.ca/jcda/vol-67/issue-2/tables.html>.
- Canadian Dental Association. (2001). *Oral Health Care Occupations, HRDC Joint Sector Study*. Ottawa, Ontario: Author.
- Canadian Dental Association. (2001). *Submission to the Commission on the Future of Health Care in Canada*. Ottawa, Ontario: Author.
- Canadian Dental Hygienists Association. (2001). *Brief to the Commission on the Future of Health Care in Canada*. Ottawa, Ontario: Author.
- Canadian Dental Hygienists Association. (2002). *Dental Hygiene Care in Canada: Brief to the Standing Senate Committee on Social Affairs, Science and Technology*. Ottawa, Ontario: Author.
- Canadian Healthcare Association. (2001). *A Responsive, Sustainable, Publicly Funded Health System in Canada: The Art of the Possible*. Ottawa, Ontario: Author.
- Canadian Health Services Research Foundation. (2001). *Listening for Direction: A national consultation on Health services and policy issues*. Ottawa, Ontario: Author.
- Canadian Health Services Research Foundation. (2002). *Health Human Resources in Canada's Healthcare system*. Ottawa, Ontario: Author.
- Canadian Home Care Association. (2001). *Commission on the Future of Health Care in Canada: Formal Submission from the Canadian Home Care Association*. Ottawa, Ontario: Author.
- Canadian Institute of Actuaries. (2002). *Submission to the Commission on the Future of Health Care in Canada*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (1999). *Health Information Roadmap: Responding to Needs*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2000). *Health Personnel in Canada 1988 to 1997*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2000). *Licensed Practical Nurses System Data Dictionary and Data Submission Specifications*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2000). *Number of Health Professionals per Capita Drops Over 10-year Period*. [Electronic Version]. Retrieved June 5, 2000 from <http://www.cihi.ca/medrls/01june2000.htm>
- Canadian Institute for Health Information (2000). *Registered Nurses Database - Year 2000 Data*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2000). *Supply, Distribution and Migration of Canadian Physicians, 2000 Report*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2001). *Canada's Health Care Providers*. Ottawa, Ontario: Author.

- Canadian Institute for Health Information. (2001). *Conceptual Health Data Model v.2.3*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2001). *Drug Expenditures in Canada 1985-2000*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2001). *Health Personnel in Canada 1991 to 2000*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2001). *Hospital Report 2001: Acute Care*. [Electronic Version]. Retrieved July 19, 2001 from <http://www.cihi.ca/HospitalReport2001/public.shtml>
- Canadian Institute for Health Information. (2001). *MIS Guidelines: Glossary of Terms*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2001). *Preliminary Provincial and Territorial Government Health Expenditure Estimates 1974/1975 to 2001/2001*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2001). *Registered Nurses System Data Dictionary and Data Submission Specifications*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2002). *Facility/Delivery Site Background Paper Unique Identifiers in Health*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information. (2002). *National Health Expenditure Trends 1975-2002*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information & Statistics Canada. (2001). *Health Care in Canada*. Ottawa, Ontario: Author.
- Canadian Institute for Health Information & Statistics Canada. (2002). *Health Care in Canada*. Ottawa, Ontario: Author.
- Canadian Medical Association. (n.d.) *CMA position paper: Tuition fee escalation and deregulation in undergraduate programs in medicine*. [Electronic version] Retrieved July 24, 2002 from http://www.cma.ca/cma/common/displayPage.do?pageId=.../position_paper.ht.
- Canadian Medical Association. (1998). *Physician health and well-being*. [Electronic Version] Retrieved July 24, 2002 from <http://www.cma.ca/cma/common/displayPage.do?pageId=/staticCo.../05-05.ht>
- Canadian Medical Association. (2001). *Maintenance of Competence (Update 2001)*. Ottawa, Ontario: Author.
- Canadian Medical Association. (2001). *Physician Compensation (Update 2001)*. Ottawa, Ontario: Author.
- Canadian Medical Association. (2001) *Physician Resource Planning: Update 2001*. Ottawa, Ontario: Author.
- Canadian Medical Association. (2001). *Scopes of Practice*. [Electronic Version]. Retrieved July 24, 2002 from <http://www.cma.ca/cma/common/displayPage.do?pageId=/staticCo.../01-21.ht>.
- Canadian Medical Association. (2001). *Workforce issues reach negotiating table*. [Electronic Version]. Retrieved June 25, 2001 from <http://www.cma.ca/cmainterface/vol-2/issue02/003a.htm>
- Canadian Medical Association. (2002). "Rural and Remote Practice Issues". *Canadian Medical Association Journal* 163(8) 1047-1050.
- Canadian Memorial Chiropractic College & The Canadian Chiropractic Association. (2002). *Sustaining and Improving Our Health Care: A Call for Action. Submission to the Commission on the Future of Health Care in Canada*.
- Canadian Mental Health Association. (2002). *Submission to the Commission on the Future of Health Care in Canada*. Toronto, Ontario: Author.
- Canadian Nurses Association. (1997). *The Future Supply of Registered Nurses in Canada*. Ottawa, Ontario: Author.
- Canadian Nurses Association. (2000). *Highlights of 2000 Nursing Statistics*. Ottawa, Ontario: Author.
- Canadian Nurses Association. (2001). *Revitalizing the Nursing Workforce and Strengthening Medicare: A Submission to the House of Commons Standing Committee on Finance and the Minister of Finance*. Ottawa, Ontario: Author.
- Canadian Nurses Association. (2002). *Discussion Paper: The Unique Contribution of the Registered Nurse*. Ottawa, Ontario: Author.
- Canadian Nurses Association. (2002). *Planning for the Future: Nursing Human Resource Projections*. Ottawa, Ontario: Author.
- Canadian Nurses Association & The Canadian Federation of Nurses Unions. (2001). *Country Report for the International Council of Nurses Workforce Forum*. Ottawa, Ontario: Author.
- Canadian Nursing Advisory Committee. (2002). *Our Health, Our Future: Creating Quality Workplaces for Canadian Nurses*. Ottawa, Ontario: Health Canada.
- Canadian Physiotherapy Association. (2000). *Description of Physiotherapy in Canada: 2000 and Beyond*. Toronto, Ontario: Author.
- Canadian Physiotherapy Association, Manitoba Branch. (2000). *Physiotherapy in Manitoba*. Winnipeg, Manitoba: Author.
- Canadian Physiotherapy Association. (2001). *Submission on the Future of Health Care in Canada*. Toronto, Ontario: Author.
- Canadian Policy Research Networks Inc. (2001). *Environmental Scan on Health Services Research Priorities*. Ottawa, Ontario: Author.

- Canadian Policy Research Networks Inc. (2002). *Health Human Resource Planning in Canada: A Health Policy Pendulum*. Appendix B Summary of Recent Government Initiatives in Health and Human Resource Planning. Prepared for the Commission on the Future of Health Care in Canada. Ottawa, Ontario: Author.
- Canadian Post-M.D. Education Registry. (1993-94). *Annual Census of Post-M.D. Trainees*. Ottawa, Ontario: Author.
- Canadian Post-M.D. Education Registry. (1994-95). *Annual Census of Post-M.D. Trainees*. Ottawa, Ontario: Author.
- Canadian Post-M.D. Education Registry. (1995-96). *Annual Census of Post-M.D. Trainees*. Ottawa, Ontario: Author.
- Canadian Post-M.D. Education Registry. (1996-97). *Annual Census of Post-M.D. Trainees*. Ottawa, Ontario: Author.
- Canadian Post-M.D. Education Registry. (1997-98). *Annual Census of Post-M.D. Trainees*. Ottawa, Ontario: Author.
- Canadian Post-M.D. Education Registry. (1998-99). *Annual Census of Post-M.D. Trainees*. Ottawa, Ontario: Author.
- Canadian Post-M.D. Education Registry. (1999-2000). *Annual Census of Post-M.D. Trainees*. Ottawa, Ontario: Author.
- Canadian Post-M.D. Education Registry. (2000-01). *Annual Census of Post-M.D. Trainees*. Ottawa, Ontario: Author.
- Canadian Post-M.D. Education Registry. 2000-2001 *First Year Trainees*. [Electronic Version]. Retrieved October 10, 2002 from <http://www.caper.ca/2000-2001FirstYearTrainees.html>.
- Canadian Post-M.D. Education Registry. (2000-2001). *Provincial Report: Maritimes*. Ottawa, Ontario: Author.
- Canadian Post-M.D. Education Registry. (2000-2001). *Provincial Report: New Brunswick Supplement 1999-2000*. Ottawa, Ontario: Author.
- Canadian Practical Nurses Association. (1999). *Continuing Education for Practical Nurses Position Statement No. 3*. [Electronic Version]. Retrieved May 27, 2002 from <http://yourwebperson.com/cpna/position3.shtml>.
- Canadian Practical Nurses Association. (1999). *Facing Forward: Current and Future Health Care Trends and Issues and the Implications for Canada's Practical Nurses*. [Electronic Version]. Scarborough, Ontario: Author.
- Canadian Practical Nurses Association. (1999). *Utilization of Practical Issues. Position Statement No. 1*. [Electronic Version]. Retrieved May 27, 2002 from <http://yourwebperson.com/cpna/position1.shtml>
- Canadian Practical Nurses Association. (2000) *Practical Nurse Education Position Statement No. 2*. Electronic Version]. Retrieved May 27, 2002 from <http://yourwebperson.com/cpna/position2.shtml>
- Canadian Practical Nurses Association. (2001). *Practical Nurses in Community Nursing. Position Statement No. 8*. [Electronic Version]. Retrieved May 27, 2002 from <http://yourwebperson.com/cpna/position8.shtml>.
- Canadian Public Health Association. (1999) *Building a Healthy Future*. Ottawa, Ontario: Health Canada.
- Canadian Society for Medical Laboratory Science. (2001). *Distance Education Calendar*. Hamilton, Ontario: Author.
- Canadian Society for Medical Laboratory Science. (2001). *Medical Laboratory Technologists National Human Resources Review - A Call for Action*. Hamilton, Ontario: Author.
- Canadian Society of Diagnostic Medical Sonographers. (2002). *Self Regulation of the Profession*. CSDMS Communique. [Electronic Version]. Retrieved December 10, 2002 from <http://www.csdms.com/regulation.html>.
- Canadian Society of Respiratory Therapists. (n.d.) *About the CSRT*. [Electronic Version]. Retrieved June 20, 2001 from <http://www.csrt.com/about/bylaws99.htm>
- Canadian Union of Public Employees. (2000). *For the Love of it. Report Long-term care issues in Manitoba*. Winnipeg, Manitoba: Author.
- Canmac Economics Ltd. (2000). *Pharmacists Demand/Supply Outlook*. Halifax, Nova Scotia: Nova Scotia Pharmacy Association.
- Carr, J. (2001). *Health Human Resources: Role of the Voluntary Sector*. Ottawa, Ontario: Health Canada.
- Centre for Health Workforce Studies. (2001). *The Health Care Workforce (Presentation)*. Albany, New York: Author.
- Centre for Health Workforce Studies. (2002). *Health Care Employment Projections: An Analysis of Bureau of Labor Statistics Occupational Projections, 2000-2010*. Rensselaer, N.Y. University at Albany: Author.
- Chan, B.T.B. (2002). "Do family physicians with emergency medicine certification actually practice family medicine?" *Canadian Medical Association Journal* 2002; 167(8), 869-870.
- Chan, B.T.B. (2002). *From Perceived Surplus to Perceived Shortage: What Happened to Canada's Physician Workforce in the 1990's?* Ottawa, Ontario. Canadian Institute for Health Information.
- Chang, P. (n.d.) *Enterprise-Wide Image Distribution*. [Electronic Version]. Retrieved May 17, 2000 from <http://www.agfamedical.com/publications/intell7/chang.htm>
- Chapman-Smith, D. (Ed.). (1997). "The Chiropractic Profession". *The Chiropractic Report* 11(2).

- Christensen, C.M., Bohmer, R., & J. (2000). "Will Disruptive Innovations Cure Health Care?" *Harvard Business Review*, September-October 2000 102-111.
- Coady, R., (2000). *Provincial Health and Community Services Interim Baseline Human Resource Indicator Report to Minister Roger D. Grimes, Health and Community Services*. St. John's, Newfoundland. Provincial Health and Community Services Human Resource Planning Committee.
- Coady, R. (2002). *Health Human Resource Planning in Atlantic Canada. Internal Report*. Dartmouth, N.S: Author.
- College of Family Physicians of Canada. (n.d.) *The Janus Project: Family Physicians Meeting the Need of Tomorrow's Society*. [Electronic Version]. Retrieved August 28, 2001 from <http://www.cfpc.ca/Janus/janusback.htm>
- College of Family Physicians of Canada. (2001). *The CFPC National Family Physician Survey: Regional Report-Atlantic Canada*. [Electronic Version]. Retrieved August 28, 2001 from <http://www.cfpc.ca/Janus/janusregatlantic.htm>
- College of Family Physicians of Canada. (2001). *Initial Data Release of the 2001 National Family Physician Workforce Survey*. Mississauga, Ontario: Author.
- College of Registered Nurses of Nova Scotia. (n.d.) *Standards for Nursing Practice*. Halifax, Nova Scotia: Author.
- Committee on Nutrition Services for Medicare Beneficiaries. (n.d.) *The Role of Nutrition in Maintaining Health in the Nation's Elderly: Evaluating Coverage of Nutrition Services for the Medicare Population: Providers of Nutrition Services, Chapter 13, 257-273*. [Electronic Version]. Retrieved May 24, 2002 from <http://books.nap.edu/books/0309068460/html/257.html>
- Continuing Care Program Advisory Committee. (2002). *Continuing Care Assistant Program 2nd Annual Stakeholders' Forum, June 7, 2002*. Halifax, Nova Scotia.
- Cook, S., & Were, W., (1999). *The Continuing Care Concept - An Overview: Presentation to the Honorable Jamie Muir, Minister of Health*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Cook, S., (1999). *Home Care Nova Scotia - An Overview: Presentation to: The Honorable Jamie Muir, Minister of Health*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Courtney, J., Kerr, D., & Buchanan Larrea, L. (2001). *Resident-Staff Ratios in Long Term Care Research Final Research Report*. Halifax, Nova Scotia: Nova Scotia Association of Health Organizations and Canadian Union of Public Employees.
- Coyne P., & Beadsmore A. (2001). "A turn for the better" . [Electronic Version]. *Health Services Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/better.htm>
- Coyte, P.C. & McKeever, P. (2001). *Submission to the Standing Committee on Social Affairs, Science and Technology*. Toronto, Ontario: University of Toronto, Home and Community Care Evaluation and Research Centre.
- Coyte, P.C. & Stabile, M. (n.d.) *Household Responses to Public Home Care Program [Abstract]*. Toronto, Ontario. University of Toronto: Department of Health Policy, Management & Evaluation.
- Cybulski, A.C., Bell, K., & Reeder J.M. (2001). *Management Strategies for Nursing Recruitment and Retention*. [Electronic Version]. Retrieved July 9, 2001 from <http://www.longwoods.com/hq/summer99/feature.html>
- Dalhousie University. (n.d.) *Dalhousie Medical School Funding Review: August 2000: Discussion Draft*. Halifax, Nova Scotia. Dalhousie University, Dalhousie Medical School.
- Dalhousie University. (n.d.) *Department of Pharmacology*. [Electronic Version]. Retrieved June 20, 2002 from <http://www.medicine.dal.ca/pharmacology/undergraduate/index.cfm>.
- Dalhousie University. (n.d.) *Faculty of Dentistry: Doctor of Dental Surgery (DDS): Canadian Students*. [Electronic Version]. Retrieved May 24, 2002 from <http://www.dentistry.dal.ca/programs/DDS/DDSintro.html>
- Dalhousie University. (n.d.) *Faculty of Dentistry: Doctor of Dental Surgery (DDS): United States Students*. [Electronic Version]. Retrieved May 24, 2002 from <http://www.dentistry.dal.ca/programs/DDSUIS/DDSUSintro.html>
- Dalhousie University.(n.d.) *Faculty of Dentistry: Graduate Prosthodontics with BME*. [Electronic Version]. Retrieved June 25, 2002 from <http://www.dentistry.cal.ca/Programs/GradPros/index.html>
- Dalhousie University. (n.d.) *Faculty of Dentistry: Qualifying Program in Dentistry for Graduates from International Dental Programs*. [Electronic Version]. Retrieved June 25, 2002 from <http://www.dentistry.dal.ca/Programs/QP/QPIIntro.html>
- Dalhousie University. (n.d.) *Health and Human Performance: Graduate Calendar*. [Electronic Version]. Retrieved May 18, 2002 from <http://www.registrar.dal.ca./calendar/grad/hahp>
- Dalhousie University. (n.d.) *Health and Human Performance*. [Electronic Version]. Retrieved June 14, 2002 from <http://www.registrar.dal.ca./calendar/ugrad/hahp/home.htm>
- Dalhousie University. (n.d.) *Registrar's Office: Graduate Calendar: Faculty of Graduate Studies*. [Electronic Version]. Retrieved July 5, 2002 from <http://www.registrar.dal.ca/calendar/grad/facgrad.htm>

- Dalhousie University. (n.d.) Registrar's Office. *Graduands List - Undergraduate and Professional Programmes*. [Electronic Version]. Retrieved May 23, 2002 from <http://www.registrar.dal.ca/convocat/gradlist/listug.htm>
- Dalhousie University. (n.d.) Registrar's Office: *Professional Calendar: Dental Hygiene*. [Electronic Version]. Retrieved May 23, 2002 from <http://www.registrar.dal.ca/calendar/prof/dehy/home.htm>
- Dalhousie University. (n.d.) Registrar's Office: *Undergraduate Calendar: College of Pharmacy*. [Electronic Version]. Retrieved May 16, 2002 from <http://www.registrar.dal.ca/calendar/ugrad/phar>
- Dalhousie University. (n.d.) *School of Biomedical Engineering*. [Electronic Version]. Retrieved June 25, 2002. from <http://bme.dentistry.dal.ca/bme>
- Dalhousie University. (n.d.) *School of Dental Hygiene Home Page*. [Electronic Version]. Retrieved June 25, 2002 from <http://www.dentistry.dal.ca/FacultyInfo/DHDept/dh.html>
- Dalhousie University. (n.d.) *School of Health Services Administration. Bachelor of Health Information Management*. [Electronic Version]. Retrieved May 27, 2002 from <http://www2.dal.ca/shsa/bhim.htm>
- Dalhousie University. (n.d.) *School of Health Services Administration: Diploma in Health Services Administration*. [Electronic Version]. Retrieved May 27, 2002 from <http://www2.dal.ca/shsa/dhsa1.htm>
- Dalhousie University. (n.d.) *School of Health Services Administration: Master of Health Services Administration*. [Electronic Version]. Retrieved May 27, 2002 from <http://www2.dal.ca/shsa/mhsa1.htm>
- Dalhousie University. (n.d.) *School of Human Communication Disorders: Program Description*. [Electronic Version]. Retrieved www.dal.ca/~hcdwww/program.htm
- Dalhousie University. (n.d.) *School of Nursing: Nurse Practitioner Program*. [Electronic Version]. Retrieved May 24, 2002 from http://www.dal.ca/~son/nursing_493.html
- Dalhousie University. (n.d.) *School of Occupational Therapy*. [Electronic Version]. Retrieved June 20, 2002 from <http://www.occtherapy.dal.ca>
- Dalhousie University. (n.d.) *School of Physiotherapy*. [Electronic Version]. Retrieved June 20, 2002 from <http://www.dal.ca/~ptschool>
- Dalhousie University. (n.d.) *Social Work: Graduate Calendar*. [Electronic Version]. Retrieved April 9, 2002 from <http://www.registrar.dal.ca/calendar/grad/slwk/>
- Dalhousie University. (n.d.) *Social Work: Undergraduate Calendar*. [Electronic Version]. Retrieved April 9, 2002 from <http://www.registrar.dal.ca/calendar/ugrad/slwk/>
- Dalhousie University. (n.d.) *Undergraduate Calendar: Health Sciences*. Retrieved June 10, 2002 from <http://www.registrar.dal.ca/calendar/ugrad/hsce>
- Dalhousie University. (n.d.) *Undergraduate Handbook 2001*. [Electronic Version]. Retrieved June 19, 2002 from <http://www.dal.ca/~cwp/dalugh/course/healthsci.html>
- Dalhousie University (2001). *Faculty of Health Professions - Graduate Programmes - School of Human Communication Disorders*. Halifax, Nova Scotia: Author.
- Dalhousie University (2001). *Faculty of Health Professions - Graduate Programmes - Department of Pharmacology*. Halifax, Nova Scotia: Author.
- Dalhousie University (2001). *Faculty of Health Professions - Graduate Programmes - Health Education*. Halifax, Nova Scotia: Author.
- Dalhousie University (2001). *Faculty of Health Professions - Graduate Programmes - Kinesiology*. Halifax, Nova Scotia: Author.
- Dalhousie University (2001). *Faculty of Health Professions - Graduate Programmes - School of Health Services Administration*. Halifax, Nova Scotia: Author.
- Dalhousie University (2001). *Faculty of Health Professions - Graduate Programmes - School of Physiotherapy*. Halifax, Nova Scotia: Author.
- Dalhousie University (2001). *Faculty of Medicine and Faculty of Engineering-Graduate Programmes - Biomedical Engineering*. Halifax, Nova Scotia: Author.
- Dalhousie University (2001). *Faculty of Medicine and Faculty of Science - Graduate Programmes - Department of Neuroscience*. Halifax, Nova Scotia: Author.
- Dalhousie University (2001). *Faculty of Medicine -Graduate Programmes - Anatomy & Neurobiology*. Halifax, Nova Scotia: Author.
- Dalhousie University (2001). *Faculty of Medicine -Graduate Programmes - Community Health and Epidemiology*. Halifax, Nova Scotia: Author.
- Dalhousie University (2001). *Faculty of Medicine - Graduate Programmes - Department of Physiology and Biophysics*. Halifax, Nova Scotia: Author.
- Dalhousie University. (2001). *Faculty of Medicine - Graduate Programmes: Medical Sciences*. Halifax, Nova Scotia: Author.
- Dalhousie University (2002). *Faculty of Medicine: Report on Funding*. Halifax, Nova Scotia: Author.
- Dalhousie University. (2001). *Faculty of Science Graduate Programmes, Department of Biochemistry*. Halifax, Nova Scotia: Author.

- Dalhousie University. (2001). *Faculty of Science Graduate Programmes, Department of Microbiology and Immunology*. Halifax, Nova Scotia: Author.
- Dalhousie University. (2001). *Faculty of Science Graduate Programmes, Department of Psychology*. Halifax, Nova Scotia: Author.
- Dalhousie University. (2001). *Fieldwork Education Manual*. Halifax, Nova Scotia: Dalhousie University, School of Occupational Therapy.
- Dalhousie University. (2001). *Institutional Self Study Task Force Report August 2001*. Halifax, Nova Scotia: Author.
- Dalhousie University. (2001). *2001-2002 Undergraduate Fee Schedule-Estimate for Fall Term*. Halifax, Nova Scotia: Author.
- Dalhousie University. (2002). *2002-2003 Medicine and Dentistry Fee Schedule*. Halifax, Nova Scotia: Author.
- Dalhousie University. (2002). *2002-2003 Tuition & Fees*. Halifax, Nova Scotia: Author.
- Dang, T.T., Antolin, P., & Oxley, H. (2001). *Fiscal Implications of Ageing: Projections of Age-Related Spending* [Abstract]. Economics Department Working Papers No. 305. Paris, France: OECD.
- Daniels, S. (1997). *The Potential for Midwifery in Nova Scotia: A Review by the Reproductive Care Program of Nova Scotia*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Danninger, L. (2001). *Health experts push solutions to state's nurse shortage*. [Electronic version]. Retrieved December 6, 2001 from <http://starbulletin.com/2001/10/10/news/story12.html>
- Davies, J. (2001). "Finders, keepers". [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/finders.htm>
- Davies, J. (2001). "The devil is in the detail". [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/recruit3.htm>
- Davies, J. (2001). "Putting the clock back". [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/putting.htm>
- Davis-Murdoch, S., & McMillan, M. (1999). *Recommendations for the Regulations and Implementation of Midwifery in Nova Scotia*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Dawson, S.L., & Surpin, R., (2001). *Direct-Care Health Workers. The Unnecessary Crisis in Long-Term Care*. Bronx, New York: Paraprofessional Healthcare Institute.
- Delsys Research Group Inc. (2001). *If You Call, Who Will Come? Canada's Emerging Challenge in Nursing*. Ottawa, Ontario: Health Canada.
- Denton, F.T., Gafni, A., & Spencer B.G. (2001). *Exploring the effects of population change on the costs of physician services*. Toronto, Ontario: McMaster University.
- Denturist Association of British Columbia. (2000). *New Partial Denture Legislation Provides More Options for Health Care Consumers in BC*. Press Release. [Electronic Version]. Retrieved May 27, 2002 from: http://www.denturist.bc.ca/partial_dentures.htm/
- Department of Health. (n.d.). *Improving Working Lives Standard*. London, England: Author.
- Department of Health. (2000). *A Health Service of all the talents: Developing the NHS workforce*. London, England: NSH Executive
- Department of Health. (2001). *Investment and reform for NHS staff - Taking forward the NHS Plan*. London, England: Author.
- Department of Health. (2001). *Making the Change: A Strategy for the Professions in Healthcare Science*. London, England: Author.
- Department of Health and Community Services. (2000). *1999-00 Annual Report*. Fredericton, New Brunswick: Government of New Brunswick.
- Department of Health and Community Services & Newfoundland & Labrador Health Boards Association. (2002). *Human Resource Indicator Survey: Fiscal Year 2000/2001*. St. John's, Newfoundland: Author.
- Department of Health and Human Services. (2000). *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. Washington, DC: Author.
- Department of Health and Social Services. (2001). *Strategic Plan 2001-2005 Consultation Draft, May 2001*. Charlottetown, Prince Edward Island: Government of Prince Edward Island.
- Dewdney, J. (2000). *WPRO/RTC Health Workforce Planning Workbook*. Sydney, Australia University of New South Wales, Centre for Public Health.
- Diallo, K., Zurn, P., Gupta, N., & Dal Poz, M. (2003). Monitoring and Evaluation of Human Resources for health: An International perspective. *Human Resources for Health* 1(3):1-19.
- Dietitians of Canada. (2001). *The Role of the Registered Dietitian in Primary Health Care: A National Perspective*. Toronto, Ontario: Author.
- Dietitians of Canada. (2002). *Dietitians of Canada Internship/Practicum Programs 2001-2002*. [Electronic Version]. Retrieved March 15, 2002 from http://www.dietitians.ca/career/i4_4.htm
- Donnelly, L. (2001). "When it's time to get even." [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/recruit5.htm>

- Doucette, E. (2001). *Is My Workplace a Quality Practice Setting?* [Electronic Version]. Retrieved December 12, 2001 from <http://www.cno.org/quality/pscp0901.html>
- Dower, C., O'Neil, E., & Hough, H. (2001). *Profiling the Professions: A Model for Evaluating Emerging Health Professions*. San Francisco, California: University of California, Centre for Health Professions.
- Fahey Dealy, M., & Bass, M. *Factors that Motivate Staff*. [Electronic Version]. Abstract retrieved June 26, 2002 from http://www.nursingcenter.com/Career.../articles_preview.asp? =profdev.ht
- Federal, Provincial and Territorial Advisory Committee on Population Health. (1999). *Toward a Healthy Future - Second Report on the Health of Canadians: Appendix B*. Ottawa, Ontario: Health Canada.
- Federal, Provincial and Territorial Advisory Committee on Population Health. (1999). *Toward a Healthy Future - Second Report on the Health of Canadians: Chapter 1*. Ottawa, Ontario: Health Canada.
- Finnie, R., (2001). *The Brain Drain: Myth and Reality What it is and What Should be Done*. *Choices Economic Forum* 7(6). Montreal, Quebec: Institute for Research on Public Policy.
- Fitch & Associates. (2001). *Performance Evaluation of Nova Scotia Emergency Health Services*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Fooks, C., Baranek, P., Duvalko, K., Lamothe, L., & Rondeau K.. (2002) *Health Human Resource Planning in Canada. Physician and Nursing Work Force Issues*. Ottawa, Ontario: Canadian Policy Research Networks Inc.
- Fooks, C. (2002). *Creating a Health Services Research Association for Canada*. Kingston, Ontario: Canadian Health Economics Research Association.
- Forgeron, A. (1999). *Volunteers Dwindling - Stats Can*. [Electronic Version]. *The Daily News*, Friday, February 12, 1999. Retrieved February 8, 2002 from http://www.gpiatlantic.org/mc_voldwindle.shtml
- Forum of Labour Market Ministers. (2001). *Older Workers in the Labour Market: Employment Challenges, Programs and Policy Implications*. Winnipeg, Manitoba: Author.
- Fralick, M., Grady, R., Hegge, M., & Salmon M. (June 2001). *Nurse Workforce: Condition Critical*. *National Health Policy Forum*. No. 763 Issue Brief. Discussion Group. Washington D.C.
- Furrie, A., Nahmiash, D. & Larsen, L. (1999). *Home Care in Canada: An Overview and an In-Depth Examination of Two Home Care Programs*. Ottawa, Ontario: Health Canada.
- Gaze, H. (2000). *Service of all talents*. [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/service.htm>
- George, P., Goodwin, S., Walker, P., et al. (2001). *Shaping Ontario's Physician Workforce*. Toronto, Ontario: Ministry of Health and Long-Term Care.
- Gillis, A., Jackson, W., & Beiswanger, D., (2001). *Nurse Recruitment, Retention, and Future Preparation*. Antigonish, Nova Scotia: St. Francis Xavier University, Department of Nursing.
- Goldsand G., & Tepper J.D. (2000). *Session 3: Dilemmas Around the Junior Medical Workforce - Canada*. 5th International Medical Workforce Conference, Sydney 2000.
- Goodson-Moore, J., Judkins, K., Johnson, R., Thorn, J., & Short J. (2000). "With due respect." [Electronic Version]. *Health Services Journal*. Retrieved from <http://www.hsj.co.uk/collections/recruit2.htm> July 7, 2001.
- Goodwin, J.W. (n.d.) *Integrated Physician Resource Management for Rural Nova Scotia: A Proposal*. [Electronic Version]. Retrieved July 10, 2001 from <http://www.westhealth.org/forum/jgoodwin.htm>
- Government of Australia. (2001). *National Review of Nursing Education*. Canberra, Australia: Author.
- Government of British Columbia. (2002). *Proposals to Amend the Health Professions Act: Improving Governance and Accountability*. Victoria, B.C.: Author.
- Government of Canada. (2001). *Achieving Excellence: Investing in People, Knowledge and Opportunity*. Ottawa, Ontario: Author.
- Government of Newfoundland and Labrador. (2000). *Human Resource Study of the Health Sector in Newfoundland and Labrador: Proposal*. St. John's, Newfoundland: Author.
- Government of Nova Scotia. (1980). *Professional Dietitians Act, R.S., ca. 361, s.1*. [Electronic Version]. Retrieved March 19, 2002 from <http://www.gov.ns.ca/legic/statutes/profdiet.htm>
- Government of Nova Scotia. (1989). *Dispensing Opticians Act. 1968, c.7, s.1*. [Electronic Version]. Retrieved April 24, 2002 from <http://www.gov.ns.ca/legi/legc/statutes/dispens.htm>
- Government of Nova Scotia. (1989). *Medical Radiation Technologists Act. R.S., c. 280, s. 1*. Halifax, Nova Scotia: Author.
- Government of Nova Scotia. (1989). *Nova Scotia Association of Optometrists By-Laws: Made under subsection 6(1) and Section 28 of the Optometry Act, R.S.N.S. 1989, c.328*. [Electronic Version]. Retrieved March 21, 2002.

- Government of Nova Scotia. (1989). *Optometry Act*. R.S., c. 328.s. 1. [Electronic Version]. Retrieved March 21, 2002 from: <http://www.gov.ns.ca/legi/legc/statutes/optomtry.htm>
- Government of Nova Scotia. (1989). *Psychologists Act*. 1980, c. 14, s.1. Halifax, Nova Scotia: Author.
- Government of Nova Scotia. (1993). *Social Workers Act*. 1993, c. 12, s.1. Halifax, Nova Scotia: Author.
- Government of Nova Scotia. (1996). *Licensed Practical Nurses Act*. R.S., c. 319, s.1;1996, c.9.s.2. Halifax, Nova Scotia: Author.
- Government of Nova Scotia. (1996). *Licensed Practical Nurses Regulations*. Halifax, Nova Scotia: Author.
- Government of Nova Scotia. (1999). *Nova Scotia College of Physiotherapists Registrations Regulations*. Halifax, Nova Scotia: Author.
- Government of Nova Scotia. (1998). *Physiotherapy Act*. 1998, c.22.s.1. Halifax, Nova Scotia: Author.
- Government of Nova Scotia. *An Act to Incorporate the Nova Scotia Dental Technicians Association*. [Electronic Version]. Retrieved March 11, 2002 from <http://www.gov.ns.ca/legi/legc/statutes/dentech.htm>
- Government of Nova Scotia. (2000). *Bill No. 69 Denturists Act*. [Electronic Version]. Retrieved March 13, 2002 from http://www.gov.ns.ca/legi/legc/bills/58th_1st/3rd_read/b069.htm
- Government of Nova Scotia. (2000). *Bill No. 69 Denturists Act*. [Electronic Version]. Retrieved March 13, 2002 from http://www.gov.ns.ca/legi/legc/bills/58th_1st/3rd_read/b069.htm
- Government of Nova Scotia. (2000). *Dental Act*. 1992, c.3,s.1. Halifax, Nova Scotia: Author.
- Government of Nova Scotia. (2000). *Optometric and Therapeutic Drug By-Laws*. [Electronic Version]. Retrieved March 25, 2002 from <http://www.gov.ns.ca/just/regulations/regs/optodrug.htm>
- Government of Nova Scotia. (2001). *Bill No. 17 Optometry Act (amended)*. [Electronic Version]. Retrieved March 21, 2002 from http://www.gov.ns.ca/legi/legc/bills/58th_2nd/3rd_read/b017.htm
- Government of Nova Scotia. (2001). *Bill No. 18 Registered Nurses Act as passed, with amendments*. [Electronic Version]. Retrieved March 22, 2002 from http://www.gov.ns.ca/legi/legc/bills/58th_2nd_3rd_read/b018.htm
- Government of Nova Scotia. (2002) *Bill No. 104 An Act Respecting the Maritime Provinces Higher Education Commission First Reading April 2, 2002*. Halifax, Nova Scotia: Author.
- Government of Nova Scotia. (2002). *Board of Examiners Regulations: Made under Section 12 of the Dental Technicians Act*. [Electronic Version]. Retrieved March 11, 2002 from <http://www.gov.ns.ca/just/regulations/regs/Denttech.htm>
- Government of Nova Scotia. (2002). *The Budget in Brief 2002-03*. Halifax, Nova Scotia: Author.
- Government of Nova Scotia. (2002). *Dental Assistants Regulations*. [Electronic Version]. Retrieved March 11, 2002 from <http://www.gov.ns.ca/just/regulations/regs/dassist.htm>
- Government of Nova Scotia. (2002). *Dental Hygienists Regulations*. [Electronic Version]. Retrieved March 5, 2002 from <http://www.gov.ns.ca/just/regulations/regs/dhygien.htm>
- Government of Nova Scotia. (2002). *Denturist Licensing Board Regulations: Made under Section 18 of the Denturists Act, R.S.N.S. 1989, c. 127*. [Electronic Version]. Retrieved March 13, 2002 from <http://www.gov.ns.ca/just/regulations/regs/dentures.htm>
- Government of Ontario. (1999) *Good Nursing, Good Health: An Investment for the 21st Century*. [Electronic Version]. Retrieved Nov. 11, 2001 from <http://www.gov.on.ca/health/english/pub/ministry/nurserep99/intro.htm>
- Government of Prince Edward Island. (n.d.) *Enhanced Physician Recruitment Plan*. [Electronic Version]. Retrieved July 11, 2001 from <http://www.gov.pe.ca/hss/recruitment/index.php3>
- Government of Prince Edward Island. (n.d.). *Nursing Recruitment and Retention Strategy*. [Electronic Version]. Retrieved July 11, 2001 from <http://www.gov.pe.ca/hss.recruitment/nursing/php3>
- Government of Québec. (n.d.) *Emerging Solutions: Part 1 Human Resources: Developing Skills, Restoring Pride* p.105-126. Québec. Commission d'Étude sur les services de santé et les services sociaux.
- Gragola, C.M. & Stone, E. (1997). *Considering the Future of Health Care Workforce Regulation*. San Francisco, C: UCSF Center for the Health Professions.
- Haddad, H. (2001). *Getting the Diagnosis Right. Toward a Sustainable Future for Canadian Health Care Policy*. (Part One of a two-part brief to the Royal Commission on the Future of Health Care in Canada). Ottawa, Ontario: Canadian Medical Association.
- Haiven, L. & J. Haiven. (2002). *The Right to Strike and the Provision of Emergency Services in Canadian Health Care*. Ottawa, Ontario. Canadian Centre for Policy Alternatives.
- Hanrahan, C., Way, C., Housser, J., & Applin, M. (2001). *The Nature of the Extended/Expanded Nursing Role in Canada*. Ottawa, Ontario: Health Transition Fund, Health Canada.

- Health Services Restructuring Commission. (1999). *Ontario Health Information Management Action Plan*. Toronto, Ontario: Author.
- Health Services Restructuring Commission. (1999). *Primary Health Care Strategy*. Toronto, Ontario: Author.
- Health Professions Council. *Shared Scope of Practice Model Working Paper*. [Electronic Version]. Retrieved April 17, 2001 from <http://www.hlth.gov.bc/leg/hpc/review/shascope.html>
- Health Professions Regulatory Advisory Council. (2001). *Adjusting the Balance: A Review of the Regulated Health Professions Act*. Toronto, Ontario: Government of Ontario.
- Health Canada. *Human Resource Issues in Home Care in Canada: A Policy Perspective*. [Electronic Version]. Retrieved May 11, 2002 from <http://www.hc-sc.ca/homecare/english/hrl.html>
- Health Canada. (n.d.) *Nursing Strategy for Canada: Executive Summary*. [Electronic Version]. Retrieved Dec. 5, 2001 from http://www.hc-sc.ca/english/nursing/exec_sum.htm
- Health Canada. (2001). *An Environmental Scan of the Human Resource Issues Affecting Medical Laboratory Technologists and Medical Radiation Technologists 2001*. Ottawa, Ontario: Health and Welfare Canada.
- Health Canada. (2001) *Health Expenditures in Canada by Age and Sex, 1980-81 to 2000-2001 - Statistical Annex* (pp. 23-55). Ottawa, Ontario: Author.
- Health Canada. (2001). *Perspectives on Complementary and Alternative Health Care*. Ottawa, Ontario: Author.
- Health Canada. (2001). *Report on Plans and Priorities 2001-2002: Section III: Plans, Results, Activities and Resources* (pp. 33-83). Ottawa, Ontario: Author.
- Health Professions Regulatory Advisory Council. (2000). *Effectiveness of Colleges' Quality Assurance Programs: Report to the Minister of Health and Long-Term Care*. Toronto, Ontario: Government of Ontario.
- Health and Welfare Canada. (1987). *The Practice of Dental Hygiene in Canada: Description, Guidelines and Recommendations*. Ottawa, Ontario: Author.
- Health Services Restructuring Commission. (1999). *Ontario Health Information Management Action Plan*. Advice and Recommendations to the Hon. Elizabeth Witmer, Minister of Health.
- Healthcare Financial Management. (2001). *Black Ink*. [Electronic Version]. *Healthcare Financial Management* 55(1) p.97. Retrieved July 9, 2001 from http://web5.infotrac.galegr.../purl+rcl_HRC_0_A69297994&dyn=24!ar_fmt?sw_aep+dart8540.
- Hennen, B.K.E. (1999). *Fixing the doctor shortage: Working together to achieve success*. *Canadian Family Physician* 45, 2017-2019.
- Hicks, B. (2000). *The English National Health Service: A Profile of Developments and Plans for the Workforce*. 5th International Medical Workforce Conference, Sydney, 2000.
- Hicks, V., & Adams, O. (2001). *Pay and non-pay incentives, performance and motivation* [Abstract]. Geneva, Switzerland: World Health Organization.
- Hinshaw, A. (2001). "A Continuing Challenge: The Shortage of Educationally Prepared Nursing Faculty". [Electronic Version]. *Online Journal of Issues in Nursing* 6(1). Abstract retrieved June 4, 1002 from http://www.nursingworld.org/ojin/topic14/tpc14_3.htm
- Holland College. (n.d.) *Advanced Care Paramedicine (Part-Time-NSCC)*. [Electronic Version]. Retrieved July 4, 2002 from [http://www.hollandc.pe.ca/FactSheets/AdvancedCareParamedicine\(Part-time-NSCC\).htm](http://www.hollandc.pe.ca/FactSheets/AdvancedCareParamedicine(Part-time-NSCC).htm)
- Hollander, M. (1999). *Substudy 1: Comparative Cost Analysis of Home Care and Residential Care Services*. Victoria, British Columbia: National Evaluation of the Cost-Effectiveness of Home Care.
- Homuth, C., Litwin P., Seville C., & Sobel M. (2000). *The Looming RT Shortage*. *Canadian Journal of Respiratory Therapy*; 36(4), 38-42.
- Hovath, P. *Areas of Competence and Retraining Issues for Psychologists*. [Electronic Version]. Retrieved May 18, 2001 from <http://3.ns.sympatico.ca/nsbep/art2.htm>
- Hovard, J., Gavel, P., Harding, J. & Harris, M. *Micro Planning of the Australian Medical Workforce: Paper presented to the Third International Physician Workforce Conference, Cambridge, November 1998*. [Electronic Version]. Retrieved May 29, 2001 from <http://amwac.health.nsw.gov.au/corporate-services/amwac/cambridge1.html>
- Human Resources Development Canada. (2001). *Developing measures to deal with the shortage of nurses in Canada*. [Electronic Version]. Retrieved May 27, 2002 from <http://142.166.179.71/common/news/hrhb/011005.shtml>
- Human Resources Development Canada. (2001). *HRDC Business Plan 2001-2001 Nova Scotia Region*. Ottawa, Ontario: Author.
- Human Resources Development Canada. (2001). *Industry Profiles: About Industry Profiles*. [Electronic Version]. Retrieved July 10, 2001 from <http://www.hrdc-drhc.gc.ca/sector/english/industryprofiles/descrip.shtml>
- Human Resources Development Canada. (2001). *Industry Profiles: Business Environment: Health and Social Service Associations and Agencies*. [Electronic Version]. Retrieved July 10, 2001 from <http://www.hrdc-drhc.gc.ca/sector/english/industryprofiles/869/busenv.shtml>

- Human Resources Development Canada. (2001). *Industry Profiles: Business Environment: Hospitals and Other Institutions*. [Electronic Version]. Retrieved July 10, 2001 from <http://www.hrdc-drhc.gc.ca/sector/english/industryprofiles/861/busenv.shtml>
- Human Resources Development Canada. (2001). *Industry Profiles: Business Environment: Non- Institutional Health and Social Services*. [Electronic Version]. Retrieved July 10, 2001 from <http://www.hrdc-drhc.gc.ca/sector/english/industryprofiles/865/busenv.shtml>
- Human Resources Development Canada. (2001). *Industry Profiles: Human Resource Profile: Health and Social Service Associations and Agencies*. [Electronic Version]. Retrieved July 10, 2001 from <http://www.hrdc-drhc.gc.ca/sector/english/industryprofiles/869/hrprofile.shtml>
- Human Resources Development Canada. (2001). *Industry Profiles: Human Resource Profile: Hospitals and Other Institutions*. Ottawa, Ontario. [Electronic Version]. Retrieved July 10, 2001 from <http://www.hrdc-drhc.gc.ca/sector/english/industryprofiles/861/hrprofile.shtml>
- Human Resources Development Canada. (2001). *Industry Profiles: Human Resource Profile: Non- Institutional Health and Social Services*. [Electronic Version]. Retrieved July 10, 2001 from <http://www.hrdc-drhc.gc.ca/sector/english/industryprofiles/863/hrprofile.shtml>
- Human Resources Development Canada. (2001). *Workshop: Coordinating Health Human Resource Strategies Report*. [Electronic Version]. Retrieved October 7, 2001 from <https://www.gov.ns.ca/cgi-bin/GW5/GWW.../REPORT+ON+MARCH+2+WORKSHOP.DO>
- Human Resources Development Canada. (2002). *Knowledge Matters: Skills and Learning for Canadians*. Ottawa, Ontario: Government of Canada.
- Hurst, J., & Jee-Hughes, M. (2000). *Performance Measurement and Performance Management in OECD Health Systems*. Labour Market and Social Policy - Occasional Papers No. 47. Paris, France: Organisation for Economic Co-operation and Development.
- Hutten-Czapski, P. (1998). "Rural incentive programs: a failing report card". *Canadian Journal of Rural Medicine* Fall 1998. [Electronic Version]. Retrieved December 28, 2001, from <http://www.cma.ca/common/displayPage.do?pageID=/staticContent/HTML/N.../0242.htm>
- Hutten-Czapski, P. (2001). *The State of Rural Health Care*. Presentation to the Standing Senate Committee on Social Affairs, Science and Technology. [Electronic Version]. Retrieved Dec. 6, 2001 from: http://srpc.ca/librarydocs/Kirby_SRPC.htm
- Institute of Medicine. (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. [Electronic Version]. Retrieved Dec. 27, 2001 from: <http://books.nap.edu/books/0309072808/html/R1.html>
- Institute for Research and Public Policy. (2001). *Choices: Economic Growth* 7(6).
- International Complementary Therapy Schools. (2000). *Massage Therapy Diploma Program Catalogue 2000-2001*. Toronto, Ontario: Author.
- Jansen, I., & Hassan, N. (2000). *Licensed Practical Nurses and Care Aides in B.C.* Vancouver, B.C.: Health Employers Association of British Columbia and Association of Unions-Health Services & Support Facilities.
- Jeffrey, D. *Nova Scotians spend more of their time volunteering*. [Electronic Version]. Mail Star Chronicle Herald, February 24, 2002. Retrieved February 8, 2002 from http://www.gpiatlantic.org/mc_moretime.shtml
- John Mitchell & Associates. (1999). *From Telehealth to E-Health: The Unstoppable Rise of E-Health*. Canberra, Australia: Department of Communications, Information Technology and the Arts.
- John Mitchell & Associates. (1998). *Fragmentation to Integration: National scoping study: The telemedicine industry in Australia*. Canberra, Australia: Department of Industry Science and Tourism.
- Joyce, M. (2000). *Utilization of Physician Services in Nova Scotia 1992/93 to 1997/98*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Kapsalis, C. (1998). *Key Sector Indicators*. [Electronic Version]. Retrieved July 10, 2001 from <http://www.hrdc-drhc.gc.ca/sector/english/publications/winter99/key.shtml>
- Kaufman, R. (2001). "The Insurance Game-Who Are We Really Working For?". [Electronic Version]. *Journal of Canadian Dental Association* (67) 201-3. Abstract retrieved May 25, 2001 from <http://www.cda-adc.ca/jcda/vol-67/issue-4/201.html>
- Kay, K. (1999). *Facing Forward: Current and Future health Care Trends and Issues and the Implications for Canada's Practical Nurses*. Scarborough, Ontario: Canadian Practical Nurses Association.
- Kazanjian, A. (1992). *Information Needed to Support Health Human Resources Management*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- Kazanjian, A., Chen, A., Wood, L., & Fung, P. (2001). *Doctors & Patients: Supply, Use and Payments in British Columbia, 1998-1999: Part 1 - Physician FTEs and Distribution in B.C.* Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.

- Kazanjian, A., MacDonald, A., Wood, L., & Cole, C. (2000). *Nursing Workforce Study Volume III: An Inventory of Nursing Program Enrolments and Graduates in Canada by Province/Territory, 1998*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- Kazanjian, A., Rahim-Jamal, & MacDonald, A. (2001). *Literature Review of HHR Policy/Planning Models: Summary of Population-Based Models*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- Kazanjian, A., Rahim-Jamal, S., MacDonald A., & Chen, A. . (2001). *The Rehabilitation Workforce Study: Supply Side Analysis*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- Kazanjian, A., Rahmim-Jamal, S., Wood, L., & MacDonald A.. (2000) *Nursing Workforce Study Volume I: Demographic Context and Health System Structure for Nursing Services in Canada*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- Kazanjian, A., Rahmim-Jamal, S., Wood, L., & MacDonald A.. (2000) *Nursing Workforce Study Volume II: The Supply of Nursing Personnel in Canada*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- Kazanjian, A., Reid, R.J., Pagliccia, N., Apland, L., & Wood, L. (2000). *Issues in Physician Resources Planning in B.C.: Key Determinants of Supply and Distribution, 1991-96*. Vancouver, B.C.: Centre for Health Services and Policy Research.
- Keating, S., Sechrist, K. (2001). "The Nursing Shortage in California: The Public Policy Role of the California Strategic Planning Committee for Nursing". [Electronic Version]. *Online Journal of Issues in Nursing* (6)1. Manuscript #1. Abstract Retrieved May 14, 2001 from http://www.nursingworld.org/ooin/topic14/tpc.14_2.htm
- Keefe, J., & Conrad, J. (2001). *Nova Scotia Profile: Human Resource Issues in Continuing Care The Baseline Data*. Halifax, Nova Scotia: Health Care Human Resource Sector Council of Nova Scotia.
- Keely, J.L. (2000). "Pharmacist Scope of Practice". *Annals of Internal Medicine* 136 79-85.
- Kendrick, M.J. *An Evaluation of the Nova Scotia Community Based Options Community Residential Service System: Executive Summary*. (2001). [Electronic Version]. Retrieved March 1, 2002 from http://www.gov.ns.ca/coms/files/review_2.asp.
- Kephart, G., Pennock, M., Skedgel, C., James, A., Nicol, K., Ross, J., & Rossler, N. (2000). *Federal Funding for Health Care: Are Provinces Getting Their Fair Share?* Halifax, Nova Scotia: Dalhousie University, Population Health Research Unit.
- Leatt, P., (Ed.) (2000). *Healthcare Papers* 1(4). Toronto, Ontario: Longwoods Publishing.
- Legge, L. (1999). *Volunteers stretched to the limit*. [Electronic Version]. *Chronicle Herald* Friday, February 12, 1999. Retrieved February 8, 2002 from http://www.gpiatlantic.org/mc_menshousework.shtml
- Legge, L. (2001). *N.S. poor worst off in Canada, study says*. [Electronic Version] *Halifax Herald* Thursday, July 19, 2001. Retrieved February 8, 2002 from http://www.gpiatlantic.org/mc_incdist_herald7-19.shtml
- LeBoutillier, M., & Manley, C. (2002). *Presentation to the Commission on the Future of Health Care in Canada*. Fairmont Chateau Laurier Hotel. Canadian College of Health Service Executives.
- Lien, J. (2000). *Human resources planning: Building a case for cross-training*. [Electronic Version]. *Medical Laboratory Observer*, Feb 2000 32(2) 46. Retrieved July 9, 2001 from http://web5.infotrac.galegr.../purl=rcl_HRC_0_A60014063&dyn=13!ar_ar_fmt?sw_aep+dart8540.
- Lilley, S. (2000). *An Annotated Bibliography on Indicators for the Determinants of Health*. Ottawa, Ontario: Health Canada.
- Locker, D., & Matear D. (n.d.) *Oral disorders, systemic health, well-being and the quality of life*. Toronto, Ontario: University of Toronto, Faculty of Dentistry.
- Looker, E.D., & Lowe, G.S. (2001). *Post-Secondary Access and Student Financial Aid in Canada: Current Knowledge and Research Gaps*. A Background Paper for a Canadian Policy Research Networks Workshop on Post-Secondary Access and Student Financial Aid, 1 February 2001, Ottawa, Sponsored by the Canadian Millennium Scholarship Foundation.
- Lowe, G.S. (n.d.). *Employer of Choice? Workplace Innovation in Government*. [Electronic Version]. Retrieved November 13, 2001 from http://www.cprn.org/Release/Other/pecw_e.htm
- Lowe, G.S. (2001). *Job Quality: The Key to Attracting, Developing and Retaining Workers of All Ages*. Keynote address to the IPMA-Canada National Training Conference, Fredericton NB, May 16, 2001.
- Lowe, G.S. (2001) *High Quality Work Environments as the Key to Attracting, Retaining and Developing Top Talent: Keynote address to the Recruiting in the Public Sector Conference*. Canadian Policy Research Networks Inc. & University of Alberta.
- Lowe, G.S. (2001). *Creating High Quality Work Environments: Trends, Issues and Challenges*. Presentation to the Canadian Nurses Association July 5, 2001.
- Lowe, G.S. (2002). *Quality of Worklife Indicators for Nurses in Canada: Workshop Report*. Ottawa, Ontario: Canadian Nurses Association.

- Lowe, G.S. & Schellenberg, G. (2001). *What's a Good Job? The Importance of Employment Relationships* (pp. 47-60). Ottawa, Ontario: Canadian Policy Research Networks Inc.
- M&E Initiative. (1999). *Situation Analysis: An IUCN Approach and Method for Strategic Analysis & Planning*. [Electronic Version]. Retrieved July 18, 2001 from <http://www.iucn.org/themes/eval/sitanalysis.htm>
- Mable, A.L., & Marriott J. (2001). *Steady State: Finding a Sustainable Balance Point*. Ottawa, Ontario: Health Canada.
- MacDonald, C. (2002). *Nurse Autonomy as Relational*. Nursing Ethics 9(2). Abstract retrieved March 3, 2003 from <http://www.nursingethics.ca/files/relational.pdf>
- MacDonald, J. CRHSPP - *Coordinating Efforts: Can psychologists make a new health care system work?* [Electronic Version]. Retrieved May 18, 2001 from <http://www.crhspp.ca/Docs/coeffort.htm>
- MacDonald, T. (2001). *Value of Volunteers pegged at \$1.9 billion*. [Electronic Version]. Retrieved February 8, 2002 from http://www.gpiatlantic.org/mc_celebvol_cbpost11-17.shtml
- MacDougall, G. (n.d.) *Social Work Practice: Another Look*. [Electronic Version]. Retrieved March 22, 2002 from <http://www.casw-acts.ca/CdnSWForum-SWP/htm>
- MacInnis, S. (2001). *Premier defends record on volunteers*. [Electronic Version]. The Cape Breton Post, November 26, 2001. Retrieved February 8, 2002 from http://www.gpiatlantic.org/mc_premvol_cbpost11-26.shtml
- MacKinnon, P., & Patriquin, H. (2002). *Presentation to The Commission on the Future of Health Care in Canada*. Halifax, N.S. Nova Scotia Association of Health Organizations.
- Manitoba Health. (n.d.) *Human Resource Planning and Labour Relations*. [Electronic Version]. Retrieved July 11, 2001 from <http://www.gov.mb.ca/health/ann/1997/98/hrplr.html>
- Maritime Provinces Higher Education Commission. (1997). *Study on Accessibility to Post-Secondary Education in the Maritimes: 6.0 Conclusions and Implications*. Fredericton, New Brunswick: Author.
- Maritime Provinces Higher Education Commission. (1999). *Multi-year Business Plan*. Fredericton, New Brunswick: Author.
- Maritime Provinces Higher Education Commission. (2001). *2000 Follow-Up Survey with the Class of 1996 Maritime University Graduates*. Fredericton, New Brunswick: Author.
- Marsh W., & Boone, G. (2002). *Human Resource Issues Study Continuing Care Sector. Summary Report: Labour Session*. Dartmouth, Nova Scotia: Health Care Human Resource Sector Council.
- Marsh, W., & Boone, G. (2002). *Human Resource Issues Study Continuing Care Sector: Summary: Phase I: Dartmouth, Nova Scotia: Health Care Human Resource Sector Council*.
- Marsh, W., & Boone, G. (2002). *Human Resource Issues Study Continuing Care Sector: Summary: Phase II: Employer Groups*. Dartmouth, Nova Scotia: Health Care Human Resource Sector Council.
- Marsh, W., & Boone, G. (2002). *Human Resource Issues Study Continuing Care Sector. Summary Report: Phase III Educators, Regulators and Industry Associations*. Halifax, Nova Scotia: Health Care Human Resource Sector Council.
- Marsh, W., & Boone, G. (2002). *Human Resource Issues Study Continuing Care Sector. Summary Report: Phase IV Government Sessions*. Dartmouth, Nova Scotia: Health Care Human Resource Sector Council.
- Marsh, W., & Boone, G. (2002). *Human Resource Issues Study Continuing Care Sector. 2002 Consensus Report*. Dartmouth, Nova Scotia: Health Care Human Resource Sector Council.
- Marshall, C., & MacLellan M. (2001). *Review and Inventory of Educational Programs Relevant to dementia Care*. Halifax, Nova Scotia: Nova Scotia Centre on Aging, Mount Saint Vincent University.
- Marshall, C., Murphy, G. & Michael. E. (2002). *Action Committee on Education of Health Professionals: June 2002 Report*. Halifax, Nova Scotia: Alzheimer Society of Nova Scotia.
- Marshall, C. (2001). *Inventory of Education and Training Related to Alzheimer Disease and Dementia Appendix VI*. Halifax, Nova Scotia: Nova Scotia Centre on Aging, Mount Saint Vincent University.
- Martinez, J. (2000). *Assessing Quality, Outcome and Performance Management*. Workshop on Global Health Workforce Strategy, Annecy, France, 9-12 December.
- Maupomé, G., Hann, H.J. & Ray, J.M. (2001). "Is There a Sound Basis for Deciding How Many Dentists Should be Trained to Meet the Dental Needs of the Canadian Population? Systematic Review of Literature (1968-1999)." [Electronic Version]. *Journal of the Canadian Dental Association* (67)87- 91. Abstract retrieved May 25, 2001 from <http://www.cda-adc.ca/jcda/vol-67/issue-2/87.html>
- Mazurat, R., (2001). "Online Educational Resources-Will More Information Make Us Wiser?" [Electronic Version]. *Journal of the Canadian Dental Association* (67)32. Abstract retrieved May 25, 2001 from <http://www.cda-adc.ca/jcda/vol-67/issue-1/32.html>
- McCarthy, G.M., & MacDonald, J.K. "Sociodemographic and Workload Characteristics of Dentists Who Participated in National Survey, 1995." *Journal of The Canadian Dental Association* 2001 (67)32. Abstract retrieved June 25, 2001 from <http://www.cda-adc.ca/jcda/vol-66/issue-3/144.html>

- McDermott & Associates Consulting. (2000). *Mental Health: A time for Action: Appendix F: Attachment 1*. 57-60. Halifax, Nova Scotia: Author.
- McGauran, A. (2001). "Handle with care". [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/handle.htm>
- McCracken, A. (1996). *A follow-up of the 1995, 1996 and 1997 Graduates of the School of Occupational Therapy Dalhousie University*. Halifax, Nova Scotia: Dalhousie University, School of Occupational Therapy.
- McIntyre, L., Officer, S., & Simpson, C. *Education and Training*. [Electronic Version]. Retrieved June 25, 2001 from <http://www.hc-sc.gc.ca/canusa/papers/canada/english/training.htm>
- McMillan, C. (2001). *Focusing on the Future: The New Atlantic Revolution*. Halifax, Nova Scotia: Council of Atlantic/Maritime Premiers.
- Medical Society of Nova Scotia. *Fact sheet: Medical Society of Nova Scotia ratification of three-year contract*. [Electronic Version]. Retrieved July 25, 2002 from: http://www.doctorsns.com/MediaRoom/Files/Fact_48.html
- Medley, F. & Larochelle D. (2002). *Leadership Skills*. [Electronic Version]. Abstract retrieved June 26, 2002 from http://www.nursingcenter.com/Career.../articles_preview.asp?page+leadsk2.ht
- Metropolitan Halifax Chamber of Commerce. (2001). *Health and Health Care in Nova Scotia*. Halifax, Nova Scotia: Author.
- Milbank Memorial Fund & Reforming States Group. (1999). *Public-Private Collaboration in Health Information Policy*. New York, New York: Milbank Memorial Fund.
- Milbank Memorial Fund & Ageing Health Programme. (2000). *Towards an International Consensus on Policy for Long-Term Care of the Ageing*. New York, New York: Milbank Memorial Fund.
- Millar, B. (2001). "Long and winding road". [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/longroad.htm>
- Ministry of Health and Ministry Responsible for Seniors. (2001). *Performance Plan 2001/2002-03-04*. Victoria, B.C.: Government of British Columbia.
- Ministry of Health Planning. (2002). *Environmental Scan*. Victoria, British Columbia: Government of British Columbia.
- Morgan, S., (2002). "Statistics and drug utilization: Are prescribing rates really that high?" *Canadian Medical Association Journal* 165(11) 1507-1508.
- Mount Saint Vincent University. (n.d.) *Mount Saint Vincent University 2002-2003 Calendar Graduate Studies: Applied Human Nutrition*. [Electronic Version]. Retrieved July 30, 2002 from <http://www.msvu.ca/calendar/Graduate/Programs/appliedHumanNutrition.htm>
- Mount Saint Vincent University. (n.d.) *Mount Saint Vincent University 2002-2003 Calendar: Psychology*. [Electronic Version]. Retrieved July 30, 2002 from <http://www.msvu.ca/calendar/Courses/psyc/requirement-psyc.html>
- Mount Saint Vincent University. (n.d.) *Mount Saint Vincent University, 2002-2003 Calendar Graduate Studies: Family Studies and Gerontology*. [Electronic Version]. Retrieved July 30, 2002 from <http://www.msvu.ca/calendar/Graduate/programs/familyStudies/Gerontology.htm>
- Mount Saint Vincent University. (n.d.) *Mount Saint Vincent University, 2002-2003 Calendar Undergraduate Certificates: Certificate in Community Residential Services*. [Electronic Version]. Retrieved July 30, 2002 from <http://www.msvu.ca/calendar/Undergraduate/Certificate-Community-Residential-Services.html>
- Mount Saint Vincent University. (n.d.) *Mount Saint Vincent University, 2002-2003 Calendar Undergraduate Certificates: Certificate in Gerontology*. [Electronic Version]. Retrieved July 30, 2002 from <http://www.msvu.ca/calendar/Undergraduate/Certificate-Gerontology.html>
- Mount Saint Vincent University. (n.d.) *Mount Saint Vincent University, 2002-2003 Calendar Undergraduate Degrees. Bachelor of Applied Arts (Family Studies and Gerontology)*. [Electronic Version]. Retrieved July 30, 2002 from <http://www.msvu.ca/calendar/under.../Bachelor-AppliedArts-FamilyStudiesGerontology.htm>
- Mount Saint Vincent University. (n.d.) *Mount Saint Vincent University, 2002-2003 Calendar Undergraduate Degrees: Bachelor of Science in Applied Human Nutrition*. [Electronic Version]. Retrieved July 30, 2002 from <http://www.msvu.ca/calendar/Undergraduate/Bachelor-Science-Applied-Human-Nutrition.html>
- Mueller, C., "A Framework for Nurse Staffing in Long-term Care Facilities." Abstract obtained from *Geriatric Nursing* 2000, 21(5) 262-267.
- Murphy, G., & Michael, E. (2002). *Action Committee on Physician Diagnosis and Treatment: June 2002 Report*. Halifax, Nova Scotia: Alzheimer Society of Nova Scotia.
- Myrick, F. & Yonge O. (2002). *Preceptor Behaviors Integral to the Promotion of Student Critical Thinking*. [Electronic Version]. Retrieved June 26, 2002 from http://www.nursingcenter.com/libraryJournalArticle.asp?Article_ID=272258
- National Assembly for Wales. (2001). *Educating and Training the Future Health Professional Workforce for Wales*. Cardiff, Wales: Author.

- National Advisory Council on Aging. (1999). *Highlights 1999 and Beyond*. Ottawa, Ontario: Government of Canada.
- National Audit Office. (2001). *Educating and training the future health professional workforce for England*. London, England: Author.
- National Dental Assisting Examining Board. *Clinical Practice Evaluation Candidate Handbook*. Ottawa, Ontario: Author.
- National Physiotherapy Advisory Group. (2001). *Let's Discuss: Physiotherapy Entry-Level Education in Canada...Issues, Options and Models*. Discussion Paper.
- Needleman, J., Buerhaus, P.I., Mattke, S., Stewart, M. & Zelevinsky, K. (2001). *Nurse Staffing and Patient Outcomes in Hospitals*. Washington, D.C.: U.S. Department of Health and Human Services, Health Resources Services Administration.
- Nevidjon, B., & Erickson, J.I. (2001). *The Nursing Shortage: Solutions for the Short and Long Term*. [Electronic Version]. Retrieved from: http://www.nursingworld.org/ojin/topic14/tpc14_4.htm
- NHS Executive. *Human Resources Performance Framework*. [Electronic Version]. Retrieved January 11, 2002 from <http://www.doh.gov.uk/hrstrategy/index.htm>
- Noakes, B., & Johnson, N. (2001). "Don't leave me this way." [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/tr10.htm>
- Nova Scotia Advisory Committee on Primary Health Care Renewal. (2003). *Primary Health Care Renewal: Action for Healthier Nova Scotians*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Nova Scotia Association of Health Organizations. (2001). *Annual Report July 1, 2000-June 30, 2001*. Bedford, Nova Scotia: Author.
- Nova Scotia Association of Health Organizations. *What is the Continuing Care Assistant (CCA) Program?* [Electronic Version]. Retrieved June 12, 2002 from http://www.nsaho.ns.ca/ourservices.asp?Folder_ID=22&ID=45.
- Nova Scotia Association of Social Workers. (1999). *Social Workers in the Health Field: Fears, Facts and Futures*. Halifax, Nova Scotia: Author.
- Nova Scotia Citizens' Health Care Network. (2002). *Brief for Presentation to the Romanow Commission by the Nova Scotia Citizens' Health Care Network*. Nova Scotia: Author.
- Nova Scotia College of Physiotherapists. (2000). *Annual Report*. Halifax, Nova Scotia: Author.
- Nova Scotia Community College. (2002). *Part Time Studies & Distance Education Fall 2002*. Halifax, Nova Scotia: Author.
- Nova Scotia Community College. (2002). *Part Time Studies & Distance Education Spring & Summer 2002*. Halifax, Nova Scotia: Author.
- Nova Scotia Council on Higher Education. (1998). *Recommendations on a New University Funding Formula for Distribution of Operating Grants*. Halifax, Nova Scotia: Department of Education and Culture.
- Nova Scotia Department of Education. (2001). *Nova Scotia Career Options 2000-2001*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Education. (2001). *Statistical Summary 2000-2001*. Halifax, Nova Scotia: Author.
- Nova Scotia Environment and Labour. (2001). *Guide to the Labour Standards Code of Nova Scotia*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (n.d.) *Midwifery in Nova Scotia: Economic Impact*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (1999). *Nursing in Nova Scotia: Strengthening the Foundation: 2nd Printing*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (1999). *Transitions in Care: Phase I Report*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2000). *Advice and Recommendations of the Advisory Committee on Capital Investment in Long Term Care*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2000). *Utilization of General Practitioner Office Visits in Nova Scotia - An Overview - 1992 to 1999*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2001). *Annual Accountability Report for the Year 2000-2001*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2001). *Annual Statistical Report 2000/01*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2001). *Making Better Health Care Decisions for Nova Scotia: A report by the Clinical Services Steering Committee*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2001). *Nova Scotia's Nursing Strategy*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health (2001). *2001-2002 Business Plan*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2001). *MIS Reporting System: Presentation to the MIS Technical Advisory Group May 7 & 8, 2001*. Halifax, Nova Scotia: Author.

- Nova Scotia Department of Health. (2002). *Annual Statistical Tables: 12 months ending March 31, 2001*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2002). *Collective Bargaining Information*. Halifax, Nova Scotia: Author. Department of Health.
- Nova Scotia Department of Health. (2002). *Presentation to the Commission on the Future of Health Care In Canada by the Hon. Jamie Muir, Minister of Health*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2002). *2002-2003 Business Plan*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2002). *Submission to the Commission on the future of Health Care in Canada*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2003). *Your Health Matters: Working together Toward Better Care*. Halifax, Nova Scotia: Author.
- Nova Scotia Department of Health. (2002). *2003-2004 Business Plan*. Halifax, Nova Scotia: Author.
- O'Brien-Pallas, L., Baumann, A., Birch, S. & Tomblin Murphy, G. *Health Human Resource Planning in Home Care: How to Approach It - That is the Question*. [Electronic Version]. Abstract retrieved February 28, 2001 from <http://longwoods.com/hp/fall00/3.html>
- O'Brien-Pallas, L., Birch, S., Baumann, A., & Tomblin Murphy, G. (2001). *Integrating Workforce Planning, Human Resources and Services Planning*. Geneva, Switzerland: World Health Organization.
- O'Brien-Pallas, L., Thomson, D., Alksnis, C. & Bruce, S. (2001). *The Economic Impact of Nurse Staffing Decisions: Time to Turn Down Another Road? Hospital Quarterly* 4(3) 42-50.
- O'Brien-Pallas, L., Baumann, A., Donner, G., Lochhaas Gerlach, J., Luba, M., Lakats, L., Amarsi, Y., & Mallette C. (1998). *Health Human Resources: An Analysis of Forecasting Models*. Ottawa, Ontario: Canadian Nurses Association.
- O'Heron, H. (April 1997). *Undergraduate enrolment forecasts: A tricky science*. Research File 2(1) Ottawa. Ontario: Association of Universities and Colleges of Canada.
- OECD. (2001). *OECD Health Data 2001: A Comparative analysis of 30 Countries. (1-10 users version)* [Data file]. Ottawa, Ontario: Renouf Publishing Company Ltd.
- Ontario Council of Hospital Unions and Canadian Union of Public Employees. (2001). *The Effective Use of Registered Practical Nurses (RPNs): Addressing a Nursing Crisis in Ontario Hospitals*. Toronto, Ontario: Author.
- Ontario Hospital Association. *Scope of Practice Summit, International and National Perspective. January 28 & 29, 2002*. Toronto, Ontario.
- Ontario Hospital Association Health Networks Steering Committee. (2000). *A Human Resources Perspective*. Toronto, Ontario: Ontario Hospital Association.
- Or, Zeynep. (2000). *Exploring the Effects of Health Care on Mortality Across OECD Countries - Labour Market and Social Policy - Occasional Papers No. 46*. Paris, France: OECD.
- Organization for Economic Co-Operation and Development. (2001). "OECD Health at a Glance - How Canada Compares." *OECD Observer* October 2001. Paris, France: OECD.
- Pagliccia, N., Rahim-Jamal, S., Reid, R.J. & Kazanjian A. (2001). *Issues in Physician Resources Planning in B.C.: Key Determinants of Supply and Distribution. Update of Selected Tables Using 1998-99 and 1999-00 Data*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- Pal, L.A. (1992). *Public Policy Analysis: An Introduction*. (2nd ed). Scarborough, Ontario: Nelson Canada.
- Paramedic Association of Canada. (2001). *Background Information About Essential Skills and Foundation Knowledge*. Kamloops, B.C.: Author.
- Paramedic Association of Canada. (2001). *National Occupational Competency Profiles for Paramedic Practitioners*. Kamloops, B.C.: Author.
- Paramedic Association of Canada. (2002). *The Need for Quality Health Care by Paramedics. Submission to the Romanow Commission on the Future of Health Care in Canada*. Kamloops, B.C.: Author.
- Paraprofessional Healthcare Institute. (2000). *Recruiting Quality Health Care Paraprofessionals*. Bronx, New York: Author.
- Paraprofessional Healthcare Institute. (2001). *Creating A Culture of Retention: A coaching Approach to Paraprofessional Supervision*. Bronx, New York: Author.
- Parent, M. (2001). *The Attendance Program: Provincial Program Status Report*. Bedford, Nova Scotia. Nova Scotia Association of Health Organizations.
- Parent, M. (2001). *Home Support in Nova Scotia: Implications of a Standard Wage Rate*. Bedford, Nova Scotia: Nova Scotia Association of Health Organizations.
- Peartree Solutions Inc. (2001). *A Situational Analysis of Human Resource Issues in the Pharmacy Profession in Canada*. Ottawa, Ontario: Human Resources Development Canada.
- Pendakur, K., *Consumption Poverty in Canada, 1969 to 1998*. [Electronic Version] Canadian Public Policy Volume XXVII Number 2. Abstract retrieved Nov. 6, 2001 from <http://qsilver.queensu.ca/~cpp/english/articles/XXVIIIn2.html>

- Pennock, M. (1996). *Nova Scotia Trends: A Population Health Perspective*. Halifax, Nova Scotia: Dalhousie University, Population Health Research Unit.
- Peterson, C. (2001). *Nursing Shortage: Not a Simple Problem - No Easy Answers*. [Electronic Version]. Abstract retrieved May 14, 2001 from *Online Journal of Issues in Nursing* 6(1) http://www.nursingworld.org/ojin/topic14/tpc14_1.htm
- Pew Health Professions Commission. (1998). *Strengthening Consumer Protection: Priorities for Health Care Workforce Regulations*. San Francisco, University of California: Centre for the Health Professions.
- Physician Resource Planning Committee. (2000). *Setting a Direction for Alberta's Physician Workforce*. Alberta Health and Wellness and the Alberta Medical Association. Government of Alberta Queen's Printer.
- Picot, J. & Craddock, T. (2000). *Overview of Telehealth Activity in Canada*. Edmonton, Alberta: The Keston Group and Infotelmed Communications Inc.
- Pollock, A. (October, 2001). *Why Does Health-Care Utilisation Increase with Age: The Cost of Living or the Cost of Dying?*. Hamilton, Ontario. Seminar, McMaster University, Economics Department.
- Pong, R.W., Saunders, D., Church, J., Wanke, M., & Cappon, P. (1995). *Building a Stronger Foundation: A Framework for Planning and Evaluating Community-Based Health Services in Canada: Component 1: Health Human Resources in Community-Based Health Care: A Review of the Literature*. Edmonton, Alberta University of Alberta, Department of Public Health & Sudbury, Ontario, Laurentian University, Northern Health Human Resources Research Unit.
- Pong, R.W., & Pitblado, J.R. (2002). "Don't take "geography" for granted! Some methodological issues in measuring geographic distribution of physicians." Abstract obtained from *Canadian Journal of Rural Medicine* 6(2) 103-12.
- Pong, R.W., & Pitblado, J.R. (2002). "Beyond counting heads: some methodological issues in measuring geographic distribution of physicians. Abstract obtained from *Canadian Journal of Rural Medicine* 7(1) 12-20.
- Population Health Research Unit. (2001). *Year in Review: 1999-2000*. Halifax, Nova Scotia. Dalhousie University.
- Premier's Advisory Council on Health. (2001). *A Framework for Reform*. Alberta: Government of Alberta.
- Primomo, J. *Nursing Around the World: Japan-Preparing for the Century of the Elderly*. [Electronic Version]. *Online Journal of Issues in Nursing* 5(2). Manuscript 1. Abstract retrieved December 6, 2001 from http://www.nursingworld.org/ojin/topic12/tpc_12_1.htm
- Province of New Brunswick. (1996). *New Brunswick at the Dawn of a New Century*. Fredericton, New Brunswick: Author.
- Provincial Health Council. (2000). *Core Clinical Service Identified by Nova Scotians: A preliminary report on essential health services*. Halifax, Nova Scotia: Author.
- Queen Elizabeth II Health Sciences Centre. (2002). *About the QEII*. Retrieved June 19, 2002 from <http://www.qe2-hsc.ns.ca/abouttheqe2/index.htm>
- Quigley, M., & Scott, G.W.S. (2001). *Health Services Research Priorities. Report to the Federal/Provincial/Territorial Advisory Committee on Health Services' Research Group*. [Electronic Version]. Retrieved January 27, 2003 from http://www.chsrf.ca/docs/pconsult/ACHSreport_e.pdf
- Rachlis, M. (1999). *Does Canada need more doctors or better-managed medical practice?* Toronto, Ontario: As published in the Toronto Star August 25, 1999.
- Rahim-Jamal, S. (2001). *Continuing Care Workforce: General Analysis*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- Rahim-Jamal, S. (2001). *Mental Health Workforce: General Analysis*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- Registered Nurses' Association of Nova Scotia. (1998). *Entry-Level Competencies for Registered Nurses in the Year 2001*. Halifax, Nova Scotia: Author.
- Registered Nurses Association of Ontario. (2001). *Ontario Registered Nurses Speak Out for Medicare: Protect, Preserve and Strengthen*. Toronto, Ontario: Author.
- Richer, P. (1999). *Canada: Home Healthcare*. [Electronic Version]. Retrieved July 24, 2002 from <http://www.tradeport.org/ts/countries/canada/mrr/mark006.html>
- Romanow, R.J. (2002). *Building on Values: The Future of Health Care in Canada: Final Report*. Ottawa, Ontario: Commission on the Future of Health Care in Canada.
- Romanow, R.J. (2002). *Shape the Future of Health Care*. Ottawa, Ontario: Commission on the Future of Health Care In Canada.
- Rondeau, G. *Challenges that Confront Social Work Education in Canada*. [Electronic Version]. Retrieved March 22, 2002 from <http://www.casw-acts.ca/CdnSWForum-Challenges.htm>
- Ryten, E. (1997). *A Statistical Picture of the Past, Present and Future of Registered Nurses in Canada*. Ottawa, Ontario: Canadian Nurses Association.

- Sabbah, W. & Leake, J. (n.d.) *Comparing Characteristics of Canadians Who Visited Dentists and Physicians During 1993/94: A Secondary Analysis*. [Electronic Version]. Abstract retrieved May 25, 2001 from: <http://www.cad-adc.ca/jcda/vol-66-2/90.html>
- Saint Francis Xavier University. (n.d.) *Bachelor of Arts in Human Kinetics*. [Electronic Version]. Retrieved July 19, 2002 from <http://www.stfx.ca/calendar/sectionA.htm>
- Saint Francis Xavier University. (n.d.) *Bachelor of Science in Human Nutrition*. [Electronic Version]. Retrieved July 19, 2002 from <http://www.stfx.ca/calendar/sectionA.htm>
- Saint Francis Xavier University. (n.d.) *Human Kinetics*. [Electronic Version]. Retrieved June 3, 2002 from <http://www.st.fax.ca/stfxismore/programs/hkinetic.html>
- Saint Francis Xavier University.(n.d.) *Human Nutrition with Honours*. [Electronic Version]. Retrieved July 19, 2002 from <http://www.stfx.ca/calendar/sectionA.htm>
- Saint Mary's University. (n.d.) *Psychology Department: Graduate Program*. [Electronic Version]. Retrieved July 31, 2002 from <http://www.stmarys.ca/academic/science/psych/grad.html>
- Saint Mary's University. (n.d.) *Psychology Department: Undergraduate Program*. [Electronic Version]. Retrieved July 31, 2002 from <http://www.stmarys.ca/academic/science/psych/undergrad.html>
- Saint Mary's University. (2001). *Saint Mary's University Fact Book 2000/2001 edition*. Halifax, Nova Scotia: Author.
- Saranchu, R., & Watkins, T. (2000). "Analysis of the relationship between program design and professional practice in CMCC's undergraduate chiropractic program." *Toronto, Ontario. JCCA 44(4) 230-244.*
- Scully, H. (n.d.) *Is Canada Producing Sufficient Doctors to Meet the Healthcare Needs of Canadians?* Presentation to the Annual General Meeting of the Ontario Orthopaedic Association. Willowdale, Ontario: Author.
- Shifrin, T. (2001). "A sense of perspective." [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/perspective.htm>
- Sigouin, K. (2001). *An overview of calls to RNANS practice consultant/advisors*. Halifax, Nova Scotia. *Nursing in Focus 2(2) 12-13.*
- Silverstein, H. (n.d.) *From the Practice Eye-View: An Analysis of Communications Needs of the Physicians of Nova Scotia*. [Electronic Version]. Retrieved November 5, 2002 from <http://www.medicine.dal.ca/dmedinfo/tararep.html>
- Slauwhite, K. (2002). *Home Support Industry Report. Current Issues, Trends and Statistics*. Halifax, Nova Scotia: Home Support Nova Scotia Association.
- Smith, D.A. & Preker A.S. (2000). *Labour market adjustment in health systems*. Workshop on Global Health Workforce Strategy. Ancey, France 9-12.
- Smith, S. (2001). "Get them while they're young." [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/young.htm>
- Snell, J. (2000). "Local counsel." [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/local.htm>
- Snell, J. (2001). "Fleet of foot." [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/recruit13young.htm>
- Society of Rural Physicians of Canada. (2002). *Comparative Regional Statistics*. [Electronic Version]. Retrieved August 12, 2002 from www.srpc.ca/numbers/html
- Society of Rural Physicians of Canada. (2002). *Regional Information: The Atlantic Canada Region*. [Electronic Version]. Retrieved August 12, 2002 from www.srpc.ca/atlantic.html
- Stadnyk, R., (2001). *Funding Nursing Home Care in Canada: A Comparison of Regional Policies and their Social Impacts*. Halifax, Nova Scotia: Dalhousie University, School of Occupational Therapy.
- Standing Senate Committee on Social Affairs, Science and Technology. (2001). *The Health of Canadians - The Federal Role. Interim Report. Volume One: The Story so Far*. Ottawa, Ontario: Government of Canada.
- Standing Senate Committee on Social Affairs, Science and Technology. (2001). *The Health of Canadians - The Federal Role. Interim Report. Volume Two: Current Trends and Future Challenges*. [Electronic Version]. Retrieved January 18, 2002 from: <http://www.parl.gc.ca/37/1/parlbus/commbus/senate/com-e/SOCI-E/rep-e/repjan01vol2-e.htm>
- Standing Senate Committee on Social Affairs, Science and Technology. (2001). *The Health of Canadians - The Federal Role. Interim Report. Volume Three: Health Care Systems in Other Countries*. [Electronic Version]. Retrieved January 18, 2002 from <http://www.parl.gc.ca/37/1/parlbus/commbus/senate/com-e/SOCI-E/rep-e/repjan01vol3-e.htm>
- Standing Senate Committee on Social Affairs, Science and Technology. (2001). *The Health of Canadians - The Federal Role. Interim Report. Volume Four: Issues and Options*. [Electronic Version]. Retrieved February 18, 2002 from <http://www.parl.gc.ca/37/1/parlbus/commbus/senate/com-e/SOCI-E/rep-e/repintsep01-e.htm>

- Statistics Canada.(n.d.) *Days lost per worker1 by cause, Canada and provinces*. [Electronic Version]. Retrieved May 9, 2002 from <http://www.statcan.ca/english/Pgdb/People/Labour/labor60c.htm>
- Statistics Canada. (n.d.) *Days lost1 per worker2 by industry and sex*. [Electronic Version]. Retrieved May 9, 2002 from <http://www.statcan.ca/english/Pgdb/People/Labour/labor61c.htm>
- Statistics Canada. (1995). *University Student Information System: USIS User Guide*. Ottawa, Ontario: Author.
- Statistics Canada. (1999). *Statistical Report on the Health of Canada*. Ottawa, Ontario: Author.
- Statistics Canada. (1999). *Workplace and Employee Survey Compendium*. Ottawa, Ontario: Author.
- Statistics Canada. (2000). *Nova Scotia Population Projections: 2002-2026*. Ottawa, Ontario: Author.
- Statistics Canada. (2001). *Annual Demographic Statistics 2001*. Ottawa, Ontario: Author.
- Statistics Canada. (2001). *Education in Canada, 2000*. Ottawa, Ontario: Author.
- Statistics Canada. (2001). *University enrolment 1998/89*. [Electronic Version]. *The Daily*, Thursday, March 9, 2002. Retrieved Feb. 11, 2002 from <http://www.statcan.ca/Daily/English/000309/d0003096b.htm>
- Statistics Canada. (2001). *Workplace and Employee Survey Compendium*. Ottawa, Ontario: Author.
- Stephenson, M., Rondeau, G., Michaud, J.C., & Fiddler S., (2001) *In Critical Demand: Social Work in Canada Volume 1 - Final Report*. Ottawa, Ontario. The Social Work Sector Study.
- Stone, R.I., (2000). *Long-Term Care for the Elderly with Disabilities: Current Policy, Emerging Trends, and Implications for the Twenty-First Century*. [Electronic Version]. Retrieved August 24, 1001 from <http://www.milbank.org/0008stone/>
- Surette, R. (1998). *Volunteers constitute a powerful, invisible force*. [Electronic Version]. *Chronicle Herald*, July 24, 1998. Retrieved February 8, 2002 from http://www.gpiatlantic.org/mc_force.shtml
- Taft, S. (2001). "The Nursing Shortage." [Electronic Version]. *Online Journal of Issues in Nursing* (6)1 No. 1, Overview. Abstract retrieved May 14, 2001 from <http://www.nursingworld.org/ojin/topic14/tpc14ntr.htm>
- Teplitsky, F. (2000). *Health Human Resources Planning in Ontario: A Status Report*. Toronto, Ontario: Toronto District Health Council.
- Thurber, A.D. & Busing, N., (1999). *Decreasing supply of family physicians and general practitioners: Serious implications for the future*. Abstract obtained from *Canadian Family Physician* 45, 2084- 2089.
- Tomblin Murphy, G., & O'Brien-Pallas, L. (2002). *How Do Health Human Resources Policies and Practices Inhibit Change? A Plan for the Future*. Discussion Paper No. 30. Ottawa, Ontario: Commission on the Future of Health Care in Canada.
- Tyrrell, L., & Dauphinee, D. (1999). *Task Force on Physician Supply in Canada*. Canadian Medical Forum Task Force.
- U.S. Department of Health & Human Services. (2001). *HHS Study Finds Strong Link between Patient Outcomes and Nurse Staffing in Hospitals*. News Release. [Electronic Version]. Retrieved September 2, 1001 from <http://www.hrsa.gov/Newsroom/releases/2001%20Releases/nursestudy.htm>
- University of British Columbia. (2000). *Inventory 99: A Regional Analysis of Health Personnel in the Province of British Columbia*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- University of British Columbia. (2001). *Rollcall Update 00: A Status Report of Selected Health Personnel in the Province of British Columbia*. Vancouver, British Columbia: University of British Columbia, Centre for Health Services and Policy Research.
- University College of Cape Breton. (n.d.) *Certificate in Orthopaedic Technology*. [Electronic Version]. Retrieved August 1, 2002 from <http://www.uccb.ns.ca/eca/certificates/orthoped.html>
- University College of Cape Breton. (n.d.) *Degree Programs in Psychology at UCCB*. [Electronic Version]. Retrieved July 31, 2002 from: <http://faculty.uccb.ns.ca/~gcarre/regulate/degree.htm>
- University College of Cape Breton. (n.d.) *Distance Education @ UCCB*. [Electronic Version]. Retrieved May 22, 2002 from <http://uccb.ns.ca/distance/What/Programs/BACS.htm>
- University College of Cape Breton. (n.d.) *Joint UCCB/St. FX Nursing Program: Academic Requirements*. [Electronic Version]. Retrieved July 31, 2002 from <http://faculty.uccb.ns.ca/nursing/navigate/require.html>.
- University College of Cape Breton. (n.d.) *Psychology, Health and Environment*. [Electronic Version]. Retrieved July 31, 2002 from <http://65.214.51.133/littlebuck/site/main/Programs/degree/psychologyHand E.htm>
- University College of Cape Breton. (2001). *Academic Program Regulations*. Sydney, Nova Scotia: Author.
- University of Kings College. *Tuition & Incental Fees 2001-2002*. [Electronic Version]. Retrieved from http://www.ukings.ns.ca/for/current/bursar/fees_tuition.htm

- Valentino, L.M. (2002). *Future Employment Trends in Nursing*. [Electronic Version]. Retrieved June 26, 2002 from http://www.nursingcenter.com.../articles_preview.asp?page=futureemrends.htm
- van Gaalen, R. & NehmÈ, M. (2001). *Insights into Recruitment: The Public Service Commission's Survey of Students - Summer 2000: Report for Nova Scotia*. Ottawa, Ontario: Public Service Commission of Canada.
- Vermont Association of Hospitals and Health Systems. (n.d.) *Challenges and Opportunities for the Vermont Health Care Workforce*. [Electronic Version]. Retrieved May 18, 2001 from <http://www.vahhs.org/lucie/Publications/Workforce%20White%20Paper.htm>
- Voelkl, J. & Phillips, M.C. (1995). *Educator/Practitioner Research in Therapeutic Recreation: Barriers to and Implications for Dissemination*. [Electronic Version]. Abstract retrieved November 14, 2002 from <http://www.indiana.edu/~1rs/lrs95/jvoek195.html>
- Ward, S. (2000). *Down the tubes*. [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/recruit4.htm>
- Ward, S. (2001). *Take the money and run?* [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/take.htm>
- Wells, A. (2000). *Allied Health Supply Report*. St. John's, Newfoundland: Health and Community Services.
- Ward, T. (2001). *Presentation to the Standing Committee on Social Affairs Science and Technology*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Wells, A., & Coady, R. (2000). *Interim Registered Nurse Supply Report*. St. John's, Newfoundland: Department of Health and Community Services.
- Wells, A., & Coady, R. (2000). *Licensed Practical Nurse Supply Report*. St. John's, Newfoundland: Department of Health and Community Services.
- Wells, A. (2000). *Allied Health Information System Specification and Minimum Data Set*. St. John's, Newfoundland. Allied Health Professional Associations and Licensing Boards.
- Were, W. (1999). *Long Term Care Program: Presentation to: The Honorable Jamie Muir, Minister of Health*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Western Health Information Collaborative. (2002). *Client Registries White Paper*. Edmonton, Alberta: Author.
- Western Health Information Collaborative. *Project Profiles*. [Electronic Version]. Retrieved July 7, 2002 from <http://www.whic.org/public/profiles>
- Whitcomb, M., (1999). "Family medicine in Canada: Where have all the physicians gone?" *Canadian Family Physicians*, 45, 2015-2016.
- Williamson, S. (2001). *Improving Canada's Productivity and Innovation Performance*. Charlottetown, P.E.I.: Industry Canada.
- Workers' Compensation Board of British Columbia. (2000). *Health Care Industry: Focus Report on Occupational Injury and Disease*. Vancouver, British Columbia: Author.
- Worklife Task Force. (2001). *Renewing our Commitment to Nurses*. Winnipeg, Manitoba: Manitoba Health.
- Wright, D., Walls, J., & Woodford, K. (2000). "A credit to us all." [Electronic Version]. *Health Service Journal*. Retrieved July 9, 2001 from <http://www.hsj.co.uk/collections/recruit6.htm>
- Wright, J., Williams, R. & Wilkinson J.R. (1998). "Development and importance of health needs assessment". *BMJ* 1998 (316) 1310-3.
- Zelder, M. (n.d.) *Canadian Health Reformers Should Understand RAND*. [Electronic Version]. Retrieved January 26, 2001 from http://www.fraserinstitute.ca/publications/forum/2000/02/section_01.html

