1993–2002

Health Personnel Trends in Canada

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Note to the Reader

"The management of health human resources includes three information-based functions: monitoring and evaluation, planning, and policy research …. All of these activities presume the availability of accurate and consistent information."[1]

The publication, *Health Personnel Trends in Canada, 1993–2002* is based on data from the Health Personnel Database (HPDB) maintained at the Canadian Institute for Health Information (CIHI). The data maintained in HPDB (counts of personnel, by province, for 21 health professional groups in Canada) is derived from the administrative sources (professional associations and regulatory/licensing authorities). Despite representing one of the only national sources of such information, better data are required for value-added analysis and modeling activities.

There is currently very little standardized national data on health human resources (HHR) in Canada, except for physicians, registered nurses, licensed practical nurses and registered psychiatric nurses. For most health personnel groups, outside of physicians and nursing, national standards for data collection do not exist and there are data gaps in areas such as demographics, education/training and practice information. Provincial/territorial governments across Canada have developed or are developing HHR systems in an effort to support HHR management[2] activities. One of the data sources governments use is the administrative data maintained by health personnel associations/regulatory authorities within their respective jurisdictions. More often than not, these data are found to be inadequate for even the most basic information-based functions of HHR management, let alone more advanced modeling/projection activities.

The Canadian Institute for Health Information (CIHI) is an independent, not-for-profit organization that plays a central role in the development of Canada's health information system. CIHI's mandate is to provide accurate and timely data and information to support sound health policy and effective management of the Canadian health system, and to promote public awareness of the factors affecting good health.

To meet this mandate, CIHI's core functions include the coordination and promotion of national health information standards and health indicators, the development and management of health databases and registries, the funding and facilitation of population health research and analysis, the coordination and development of education sessions and conferences, and the production and dissemination of health information research and analysis.

The Health Personnel Database (HPDB) is one example of a health information system maintained by CIHI. The health human resources information systems at CIHI are at various stages of evolution.

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[1] HHRU 1992:1, Kazanjian A, *Information Needed to Support Health Human Resources Management*. February 1992. ISBN 1-896459-62-5 (http://www.chspr.ubc.ca/cgi-bin/pub?program=hhru&by=date).

[2] For the purposes of this publication, the parameters of the term management (of health human resources) are defined by the information-based functions of planning, monitoring and evaluation and research.

HPDB

Immature Supply-based Information Systems

Some Characteristics:

- Information Needs—Limited range of desired information needs are met. The range of variables available for analysis are limited and the level of data aggregation limits flexibility of system to address changing information needs (e.g. anonymized individual record level data are not available).
- Standards—General lack of data standards (standardized, comparable data are unavailable or available under conditions of less rigorous verification and validation; information on quality of data is limited).
- Analytical Outputs—Only simplistic outputs possible. Basic descriptive (often referred to as "elevator statistics"—numbers went up, numbers went down) analysis with very little value added information.
- Integration—Limited integration or linkage enhancement opportunities (functionally impossible to link to other systems to enhance value of information).
- Technical Infrastructure—Simple architecture (paper files or "flat" electronic files; no relational database).
- CIHI Example(s)—Health Personnel Database (HPDB).

LPNDB/RPNDB
After a few more years of data collection (both systems began collecting data in 2002), it is anticipated that the Licensed Practical Nurses Database (LPNDB) and the Registered Psychiatric Nurses Database (RPNDB) will offer similar analytical capabilities to that of RNDB.

Mature Supply-based Information System

Some Characteristics:

- Information Needs—A wide range of variables available for analysis designed to address clearly articulated information needs. Unit of analysis is sufficiently discrete to meet changing information needs (e.g. anonymized individual record level data are stored).
- Standards—Clearly articulated data standards (standardized, comparable data are available based on documented system and data submission specifications). Rigorous editing, verification/validation routines and elaborate data quality evaluations are possible.
- Analytical Outputs—Advanced analytical activities such as trending analysis, forecasting, and sophisticated value added research are possible.
- Integration—Integration/linkage with other existing systems in order to enhance the information available (quantity and/or quality) is possible.
- Technical Infrastructure—Relational databases are the norm.
- CIHI Example(s)—National Physician Database (NPDB); Southam Medical Database (SMDB); Registered Nurses Database (RNDB).
- Outputs—Advanced, policy relevant outputs are possible, including forecasting analyses (for example, *Bringing the Future into Focus: Projecting RN Retirement in Canada*) and in-depth examinations of the workforce implications of policy decisions (for example, *From Perceived Surplus to Perceived Shortage: What Happened to Canada's Physician Workforce in the 1990s?*).

Visit www.cihi.ca for more information.

Visit www.cihi.ca for more information.

Visit www.cihi.ca for more information.

RNDB
SMDB
NPDB

The limitations of use attached to the health personnel data in this publication, in particular for groups outside of physicians and nurses, reinforces the need for future work in health human resources information development in Canada.

Acknowledgements

The Health Human Resources department at CIHI appreciates the contributions and the continuous support of the following organizations and individuals, without whom this publication would not be possible:

- The registrars, executive directors and their teams from the provincial/territorial organizations that took time to prepare, submit and verify data for this publication. Without their effort, commitment and collaboration, a national health personnel database for Canada could not exist.
- The participating universities and colleges, as well as the Association of Canadian Medical Colleges (ACMC) for providing education data for this publication.
- The individuals from the national professional organizations that completed the Phase II Survey on behalf of their profession and reviewed and provided invaluable feedback on the profession specific sections of the publication.
- The team at Statistics Canada for Census and Labour Force Survey data, methodological information, and invaluable review and feedback.
- The team at Health Canada for the table outlining the current regulatory environment for health personnel.

Core members of the CIHI project team included Brent Barber, Jessica Livermore, Lan Wang, Liliane Leroux, and Scott Young.

We would also like to thank the following for their contributions to this report: Anick Losier, Ian Button, Jill Strachan, Louise Ogilvie, Rummy Dhoot, and Steve Slade.

We wish to extend our thanks and gratitude to all health personnel caring for and improving the lives of Canadians.

Preface

The Health Human Resources team of the Canadian Institute for Health Information (CIHI) is pleased to present *Health Personnel Trends in Canada, 1993–2002 (formerly the Health Personnel in Canada* series). This publication presents the most recent information from the Health Personnel Database (HPDB) at CIHI.

Health Personnel Trends in Canada, 1993–2002 reflects an evolution in the products and services available from the Health Personnel Database at CIHI. The latest publication from the HPDB attempts to maintain continuity with previous editions, while providing additional information to enhance the value and utility of the publication. The focus of the current publication continues to be the provision of aggregate, supply-based trend information by province/territory and year, for 21 selected health personnel groups. More detailed information is provided where possible, from a variety of sources, including professional associations, regulatory authorities, individual educational institutions, and Statistics Canada. Expanding on the standard tables and analysis familiar to the *Health Personnel in Canada* series, the current publication includes (for selected health personnel groups):

- an examination of personnel trends, by profession, using Census, Labour Force Survey and data from administrative sources across Canada;
- information on the current and historical regulatory changes by province/territory and profession, that may have influenced workforce trends during the period 1993–2002;
- suggested factors that may increase demand for health personnel;
- Census data on average age and gender for the health personnel groups;
- an examination of the critical path from exiting secondary education to entering the health workforce, including proposed changes to education and/or training requirements; and
- recommended reading (research completed or in progress and recommended by the professions themselves) for health human resource planners.

It is hoped that this report will support future work towards a comprehensive and integrated approach to health human resource information in Canada.

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Introduction

Health Personnel Trends in Canada, 1993–2002 (formerly the Health Personnel in Canada series) is a reference document produced by the Canadian Institute for Health Information (CIHI) to assist health services planning and research. By providing time-specific information for a number of health personnel groups, this publication may be used by governments, academics, professional health organizations, researchers, and managers of health delivery organizations to better understand Canadian health personnel trends. Census and Labour Force Survey (LFS) data for selected health personnel groups provide a method of cross-validation of both the administrative data and the survey data included in the publication. In addition, some demographic trend information (e.g. gender and average age) not currently available from HPDB, is available from Census, and to a lesser extent from the LFS.

This publication contains information on the 21 health personnel groups in Canada identified in the table below.

Table 1. Groups Included in Health Personnel Trends in Canada, 1993–2002

Chiropractors	✓	Occupational Therapists	✓
Dental Hygienists	✓	Optometrists	✓
Dentists	✓	Pharmacists	✓
Dietitians	✓	Physicians	✓
Health Record Professionals	✓	Physiotherapists	✓
Health Service Executives	✓	Psychologists	✓
Licensed Practical Nurses	✓	Registered Nurses	✓
Medical Laboratory Technologists	✓	Registered Psychiatric Nurses	✓
Medical Physicists	✓	Respiratory Therapists	✓
Medical Radiation Technologists	✓	Social Workers	✓
Midwives	✓		

The primary purpose of *Health Personnel Trends in Canada, 1993–2002* is to provide a baseline indication of changes in the number of health personnel (selected groups) over a ten-year period. The intent of this publication is not to reflect the entire health workforce in Canada. Due to limited data availability, various health personnel groups important to the health system and the health of Canadians are absent from this publication. The Canadian Institute for Health Information (CIHI) is constantly seeking to improve the comprehensiveness of the Health Personnel Database (HPDB). Potential data and information providers with questions about inclusion in this publication should contact:

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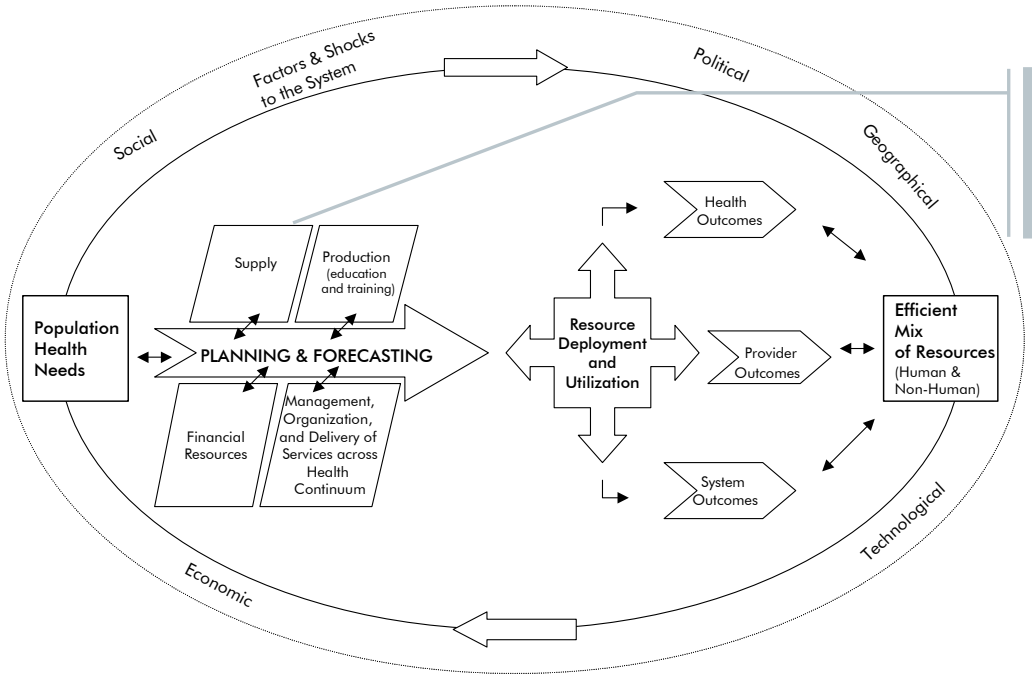
Health Personnel in Canada—Overview

The primary source of data for the publication, *Health Personnel Trends in Canada, 1993–2002* is the Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI). The focus of the report is to highlight health personnel trends over the past ten years. Where possible HPDB data are supplemented with data and information from other sources.

Framework for Analysis of Health Human Resources

Many analytical frameworks/models have been developed in an effort to understand the complexity of inputs, outputs and interactions that define health human resources in Canada.[3] These frameworks provide a basis for identifying the necessary data needed for effective analysis of the complex factors that affect the supply and demand of health human resources. The framework developed by O'Brien-Pallas, Tomblin Murphy, Baumann, and Birch is one such example (Figure 1).

Figure 1. Health Human Resources Conceptual Framework



O'Brien-Pallas, Tomblin Murphy, Baumann, Birch, 2001 (adapted from O'Brien-Pallas & Baumann, 1997)

Supply-side data found in HPDB provides some information about the supply of personnel.

[3] For the purposes of this report, health human resources refer to the range of human resources (people) that work in the health systems and care for the health of Canadians.

Many of the elements required to meet the information based functions of managing health human resources—monitoring and evaluation, planning and research—can be identified through the model. The model also clearly illustrates the interplay between supply side factors (factors influencing the supply of health personnel) and the demand side factors (factors influencing the demand for health personnel) all within the context of a complex environment. The supply side data presented in *Health Personnel Trends in Canada, 1993–2002* provides a general indication of the trends in health personnel in Canada.

Sources of Health Personnel Supply-side Data

Figure 2. Sources of National Supply-side Health Human Resources Data

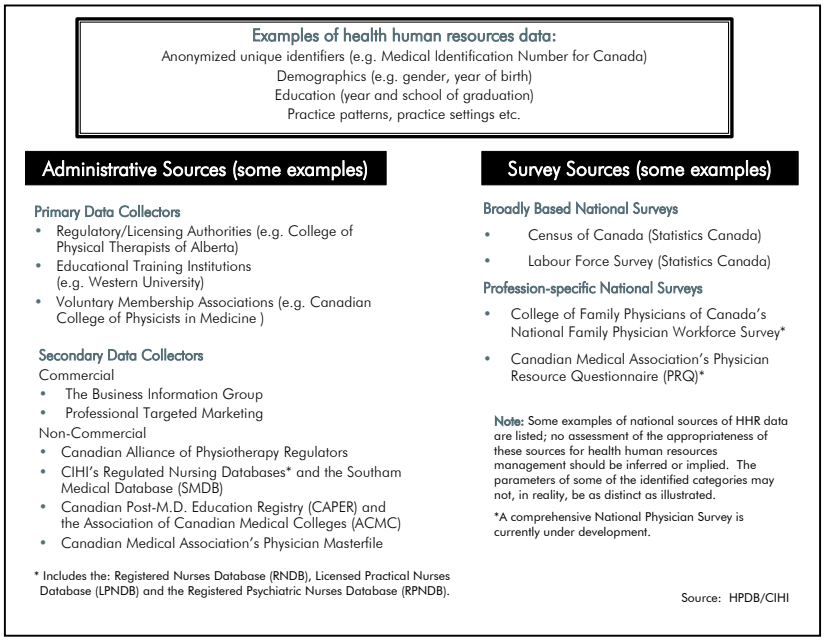


Figure 2 illustrates some of the different sources of supply-side health personnel data available in Canada.

In general terms, there are currently[4] two potential sources of health human resources data in Canada: administrative sources and survey sources. Often the initial purpose and mandate for collection of data, whether from administrative or survey sources, are not for health human resources management.

Administrative Sources

Data from administrative sources are collected as a function of some administrative process—collecting membership fees, communicating with members, and issuing licenses to qualified registrants are some examples of these processes. Administrative sources are comprised of primary data collectors and secondary data collectors, both of whom may collect data for commercial and/or non-commercial purposes.

Primary data collectors represent organizations that collect data directly from health personnel, typically for administrative reasons. Examples of primary data collectors include the Canadian College of Physicists in Medicine (data on medical physicists), the College of Physicians and Surgeons of British Columbia (data on physicians), the University of Western Ontario (data on students and graduates).

[4] While not currently operationalized as a tool for health human resources management, the development of the electronic health record, in particular the provider registry component may hold future promise. For more information on the electronic health record please visit www.hc-sc.gc.ca/ohih-bsi/theme/ehr_dse/index_e.html; information on the Provider Registry please visit http://www.whic.org/public/profiles/pRegistry.html.

Secondary data collectors obtain data from primary data collection sources and use the data for a variety of purposes, both commercial and non-commercial. One example of a non-commercial secondary collector is the Canadian Institute for Health Information (CIHI). CIHI obtains data from the Canadian College of Physicists in Medicine, for example, for inclusion in the Health Personnel Database (HPDB). CIHI's mandate is non-commercial and the purpose of HPDB is to collect, process and analyse summary data on the number of health personnel in Canada, facilitate provincial and national comparative reporting and facilitate health personnel resource planning, as well as to support related analysis and research. Other organizations, such as the Business Information Group (www.mdselect.com), collect publicly available data from primary collectors (e.g. College of Physicians and Surgeons of British Columbia) and use this information to publish the Canadian Medical Directory and to allow paying customers to develop mailing lists to physicians for marketing purposes. In some instances, secondary data collectors obtain data from other secondary data collectors, and use the data for entirely different purposes. The Southam Medical Database (SMDB) at CIHI is one such example. CIHI purchases copies of the Business Information Group's dynamic[5] physician database annually to add year-specific physician data to the SMDB at CIHI.[6] SMDB data are used to generate summary statistics on physician demographic and practice information, to provide up-to-date information on the supply, distribution and migration (interprovincial and international) patterns of Canadian physicians and to support related approved analysis and research.

Survey Sources

Survey data are collected via on-going or one-time survey instruments. Many entities survey health personnel for commercial and/or non-commercial purposes. In Canada, the most comprehensive surveying efforts are completed primarily through non-commercial interests, research and statistical organizations. In general, surveys of health personnel are either directed at a specific personnel group (e.g. physicians) or capture health personnel information as a byproduct of surveying a subset of the general population. Only rarely has collecting the information needed for the management of health human resources been a design feature of national surveys.

The most recognized, comprehensive national surveys that collect data on health personnel are the Labour Force Survey (LFS) and the Census, both from Statistics Canada. More details on both surveys are available in the Methodological Notes section. In general, neither survey was specifically designed to address the data and information needs of health human resource management, and issues around the categorization of health professionals (LFS and Census) and sample size issues (LFS) limit the utility of the data on health professionals that are available. Despite these challenges, and in the absence of a comprehensive administrative health human resources information system in Canada, these two surveys offer an important overview of the entire health workforce in Canada.

Examples of national, health personnel (group-specific) surveys include the National Family Physician Survey (NFPS), part of the JANUS project of the College of Family Physicians of Canada (www.cfpc.ca) and the Physician Resource Questionnaire (PRQ Survey) conducted by the Canadian Medical Association (www.cma.ca). The results of both surveys offer unique and valuable sources of physician data, however, human resource management in the context of the Canadian health system requires data on a range of health personnel. A comprehensive National Physician Survey is currently under development.

[5] The Business Information Group's physician database is dynamic (data are updated constantly, whenever new information on individual physicians becomes available) and no historical information are maintained.

Regulated and Unregulated Health Personnel

Visit www.cihi.ca for more information.

Health personnel in Canada can be categorized based on whether or not their activities are subject to legislation/regulation (i.e. regulated and unregulated health personnel). This distinction has significant implications in terms of health personnel data presented in this publication. The regulatory framework in Canada is complex with considerable variation between provinces/territories and even within the same health personnel group. Readers interested in a summary of regulation related to health personnel in Canada are encouraged to obtain a copy of the publication, Canada's Health Care Providers (www.cihi.ca) and to visit the Canadian Information Centre for International Credentials website at www.cicic.ca.

In general, a regulated health occupation is one that is controlled by provincial/territorial or federal legislation and governed by a professional organization or regulatory authority. Provincial/territorial or federal legislation empowers a specific organization (e.g. College of Physicians and Surgeons of British Columbia) with the authority to set entry requirements and standards of practice, to assess applicants' qualifications and credentials, to certify, register, or license qualified applicants, and to discipline licensees.[7] From the perspective of collecting data on health personnel, regulated health occupations present an opportunity for more complete data because employment in a particular health occupation is often conditional on registration/licensure with a specific primary data collector. Of the regulated health care provider groups, there is more information available on physicians and the regulated nursing professions than on any other health provider group in Canada.

For unregulated health personnel (formal health care providers/personnel not subject to any provincial/territorial regulations) registration may occur on a voluntary basis or be required by specific employers. However, no legislated requirement exists for registration as a condition of employment. From the perspective of collecting data on health personnel, unregulated health occupations present immense challenges. Any administrative sources of data on unregulated health occupations that do exist may significantly undercount the number of health personnel. If registration is not a condition of employment, health personnel may not register. For most unregulated health occupations, the only current sources of data are from broad-based survey instruments such as the Labour Force Survey and the Census.

The challenges associated with collecting data on regulated health personnel are considerable, evidenced by the fact that only a handful of health personnel groups are currently able to collect standardized data that are comparable across Canada. For unregulated personnel the task is impossible and data simply does not exist because regulatory authorities do not exist to maintain membership lists. Without standardized, comparable data the utility of indicators such as counts of health professionals or professionals-to-population ratios are limited and subject to misinterpretation.

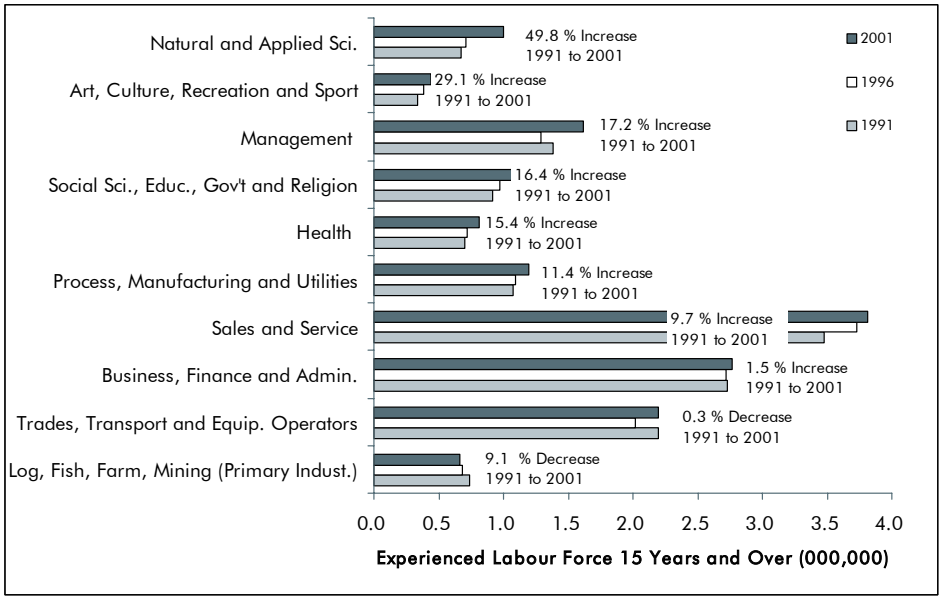
[6] The SMDB at CIHI maintains data on physicians from 1968 to the present. Data on SMDB is as of December of a given year.

[7] Adopted from the Canadian Information Centre for International Credentials website.(October26, 2003). http://www.cicic.ca/factsheets/factsheet2en.stm#2.

Number of Health Personnel in Canada

According to the Census, in 2001, approximately 5.0% of the experienced labour force 15 years of age and over indicated an occupation in health (see Figure 3). This represents over 800,000 Canadians in the health labour force. Census estimates indicate that the overall experienced labour force in Canada (employed or unemployed who worked for pay or in self-employment) increased 9.5 %, from approximately 14.2 million in 1991 to approximately 15.6 million people in 2001. The growth rate in health occupations surpassed the rate of growth in the overall experienced labour force, increasing 15.4 % between 1991 and 2001.

Figure 3. Experienced Labour Force 15 Years of Age and Over by Occupation and Percent Change (Increase/Decrease) Between 1991 and 2001, Canada, Selected Census Years (1991, 1996, 2001)



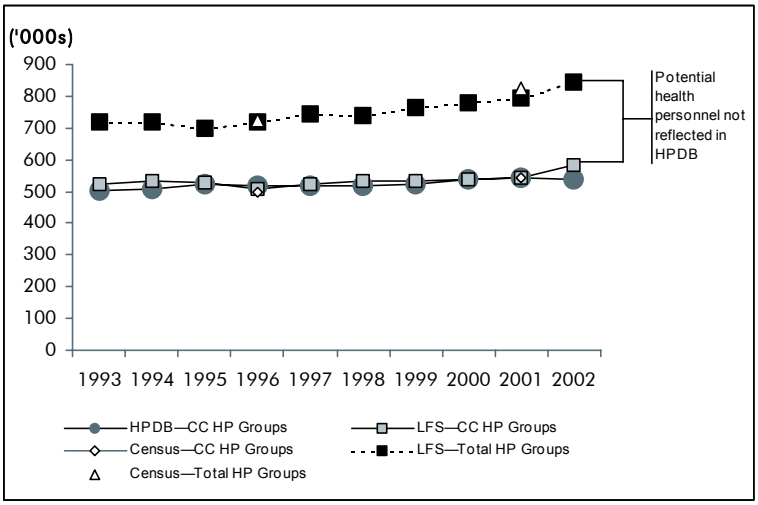
Source: Adapted from Statistics Canada's Internet Site, www.statcan.ca/english/Pgdb/labor44.htm, October 15, 2003.

Note

Experienced labour force: Persons who, during the week (Sunday to Saturday) prior to Census Day (May 15, 2001), were employed or unemployed who worked for pay or in self-employment since January 1, 2000. Occupation (historical): Refers to the kind of work persons were doing during the reference week, as determined by their kind of work and the description of the main activities in their job (Individuals with multiple employment report job at which they worked the most hours).

The total number of health personnel in Canada is a difficult number to precisely determine. The 21 health occupations included in *Health Personnel Trends in Canada, 1993–2002* represent some, but by no means all, of the health professions regulated to practice in Canada. In addition, estimating the number of health personnel in Canada based on only regulated health professions excludes unregulated health professions, and informal caregivers.

Figure 4. Number of Health Personnel



Sources: HPDB/CIHI, LFS/Statistics Canada, Census, Statistics Canada

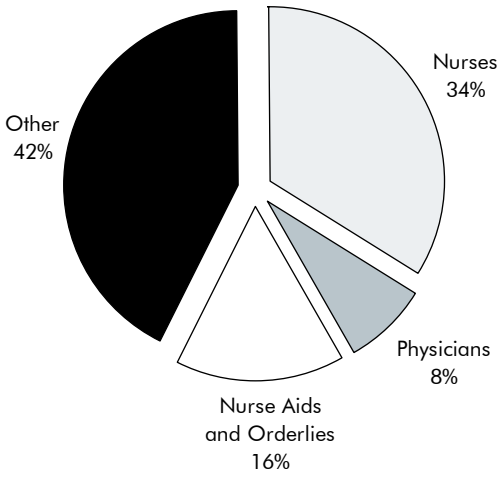
Figure 4 illustrates estimates of the total number of health personnel in Canada from three distinct data sources: the Health Personnel Database (HPDB), the Labour Force Survey (LFS) and the Census. In Figure 4, the "CC" label identifies that the underlying data include only those personnel groups designated as "common comparable" (i.e. 18 of the 21 health personnel groups in this publication). The underlying data used to generate this figure can be found in Appendix B (more detailed data by personnel groups, source and year can also be found in Appendix C). The difference between "CC HP Groups" and "Total HP Groups" represents those health personnel for whom data are not collected in HPDB. As presented in Figure 4 and Appendix E, "Total HP Groups" represents a much broader range of health occupations from all health categories. LFS and Census counts of all "Total HP Groups" includes all of D0—Professional Occupations in Health (excluding Veterinarians), D1—Nurse Supervisors and Registered Nurses, D2—Technical and Related Occupations in Health (excluding Animal Health Technologists), D3—Assisting Occupations in Support of Health Services, E021—Psychologists and E022—Social Workers.

At a macro level, for "CC HP Groups", HPDB administrative counts of health personnel in Canada (i.e. HPDB—CC HP Groups) are very similar to the LFS and Census estimates for the same time period (LFS—CC HP Groups and Census—CC HP Groups, respectively). For the common years, HPDB data increased 5.0%, from 523,649 in 1996 to 549,763 in 2001. For the same 18 common comparable groups, LFS estimates increased of 6.9%, from 508,300 in 1996 to 543,500 in 2001 and Census estimates increased 8.5% from 500,090 in 1996 to 542,370 in 2001.

The second set of LFS and Census data in Figure 4 (see also Appendix F) represents estimates of those personnel in an expanded range of health occupations (i.e. the "Total HP Groups"). From these data, the LFS estimates increased 11.1%, from 716,600 in 1996 to 796,100 in 2001 and Census estimates increased 13.3%, from 726,440 in 1996 to 823,415 in 2001.

Figure 5 illustrates the distribution of personnel, by health occupation based on the 2001 Census. The regulated nursing professions represent over one-third of all health personnel in Canada. The occupations found in the categories Other and Nurses Aids and Orderlies include both regulated and unregulated components of the health labour force.

Figure 5. Distribution of Personnel by Health Occupation



Source: Census (2001), Statistics Canada

Legislative/Regulatory Environment for Health Personnel in Canada

Table 2 illustrates the results of an interprovincial survey of health professions regulated by legislation (conducted by Health Canada's Health Care Strategies and Policy Directorate).

Table 2. Interprovincial Survey of Health Professions Regulated by Legislation

Health Profession	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
Acupuncturists					Y				Y^{NSR}	Y			
Chiropodists/Podiatrists				Y	Y	Y	Y^{P}	Y	Y	Y			
Chiropractors	Y	X^{3}	Y	Y^{DA}	Y	Y	Y	Y	Y	Y	Y		
Dentists	Y	Y	Y	Y^{DA}	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dental Assistants	Y^{DA}	Y^{DA}	Y^{DA}	Y^{DA}			Y^{DA}	Y	Y	Y			
Dental Hygienists	Y^{DA}	Y^{DA}	Y^{DA}	Y	Y	Y	Y^{DA}	Y	Y	Y	Y	Y	Y
Dental Technicians/Technologists	Y^{DA}	Y^{DA}	Y	Y	Y	Y		Y	Y	Y			
Dental Therapists	Y^{DA}						Y^{DA}	Y			Y	Y	Y
Denturists	Y	X^{3}	$Y^{1, 2}$	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dietitians and Nutritionists	Y	Y^{D}	Y	Y	Y	Y^{D}	Y	Y	Y	Y			
Emergency Medical Technicians/Health Emergency Assistants/Paramedics		Y				Y^{NSR}	Y^{NSR}	Y^{NSR}	Y	Y^{NSR}			
Hearing Aid Practitioners/Acousticians	Y		$Y^{NSR/NH}$		Y		Y^{NH}	Y^{2B}	Y	Y			
Laboratory and X-ray Technologists (Combined)	$Y^{NSR/NH}$	Y							Y				
Licensed Practical Nurses/Registered Practical Nurses	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Massage Therapists	Y^{1}					Y				Y			
Medical Laboratory Technologists			Y^{2}	Y	Y	Y	Y^{2}	Y	Y				
Medical Practitioners/Physicians	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Medical Radiation Technologists	$Y^{NSR/NH}$	Y	Y	Y	Y	Y		Y	Y^{NPF}				
Midwives	X^{1}				Y	Y	Y	Y^{2}	Y^{NSR}	Y			
Naturopathic Physicians						Y	Y	Y	Y^{2}	Y			
Occupational Therapists	Y	Y^{1}	Y	Y	Y	Y	Y	Y	Y	Y			
Ophthalmic Dispensers/Opticians	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			
Optometrists	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Osteopathic Physicians				Y^{MA}		Y^{DPA}	X^{2}	Y	Y^{MA}	Y			
Pharmacists	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Physical Therapists/Physiotherapists	Y	Y^{1}	Y	Y	Y	Y	Y	Y	Y	Y	Y^{2}		
Psychiatric Nurses							Y	Y	Y	Y			
Psychologists	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Registered Nurses	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Respiratory Therapists					Y	Y	Y		Y	Y^{NSR}			
Social Workers	Y	Y	Y^{NH}	Y	Y	Y^{NH}		Y^{NH}	Y	Y^{NSR}			
Speech Language Pathologists and Audiologists				Y	Y	Y	Y	Y	Y				

Source: Health Canada, Health Care Strategies and Policy Directorate

Notes

The letter "Y" in a cell indicates that legislation is present; the letter X indicates that legislation is under review, being replaced or under re-development. Superscript designations identify any variation. A "___"(blank) cell indicates that no legislation covering the specific health profession exists within an individual jurisdiction. Information as of May 5, 2003.

Y Profession Regulated
Y^{1} Changes to the Act/Regulations under development
Y^{2} Act passed but not proclaimed
Y^{2B} Not Proclaimed, Business only regulated
Y^{DA} Regulated under a Dental Act
Y^{MA} Regulated under a Medical Act
Y^{NSR} Regulated directly by Government
Y^{NH} Regulated under legislation not administered by a Health Ministry/Department
Y^{P} Podiatry legislation
Y^{C} Chiropody legislation
Y^{D} Refers to dieticians and not nutritionists
Y^{NP} Includes Electroneurophysiologists
Y^{NPF} Inclusion of Electroneurophysiologists under development
Y^{DPA} Drugless Practitoner Act, No Entry
X^{1} Act to be replaced
X^{2} Act replaced
X^{3} New Act being developed

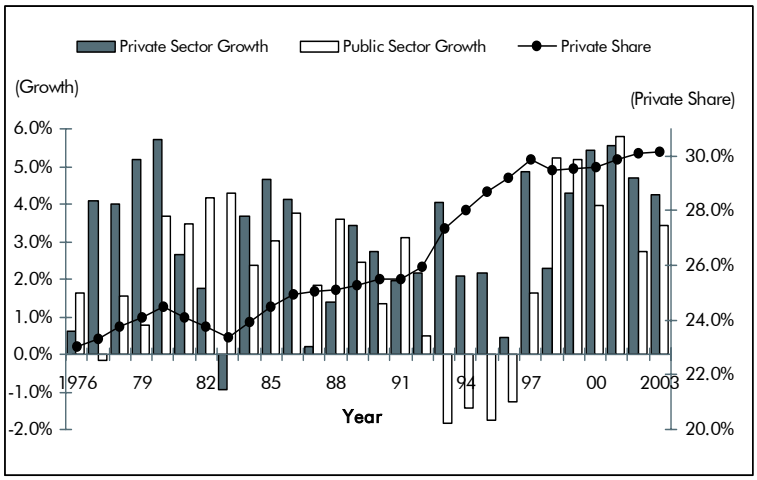
For health professional groups across Canada, many legislative and regulatory changes occurred, or began to occur, during this ten-year period from 1993 to 2002. For example, prior to 1993, the Association of Medical Laboratory Technologists of Ontario maintained a register of medical laboratory technologists in Ontario; however, there was no requirement for medical laboratory technologists to be registered. In December 1993, the Medical Laboratory Technology Act (amended by O. Reg 542/95) was established with the requirement that all medical laboratory technologists practicing in Ontario be registered with the College of Medical Laboratory Technologists of Ontario. Reflecting the important impact that the regulatory status of health personnel can have on data, the province and year of initial legislation are provided for all personnel groups included in this publication (please see personnel-specific section of publication for details).

Health Expenditures on Health Personnel in Canada[8]

In 2003, CIHI estimated that total health care spending in Canada amounted to $121.4 billion or $3,839 per person or 10% of Canada's Gross Domestic Product. From 1975 to 2003 health care spending increased by over $100 billion. Much of this growth is explained by inflation and population growth as well as real spending growth in the public and private sectors.

Inflation adjusted per capita health care spending by private health insurers and households (the private sector) grew more rapidly than public sector health care spending during the last half of the 1970s. From the early 1980s to 1990 growth in the two sectors was similar at over 2.5% per year. Following the 1991–1992 recession the growth in the public sector slowed. In 1993, there was a decline in real per capita public sector health care spending of 1.8% with further declines over the next three years. In 1997, real per capita public sector expenditures increased by 1.6%, and between 1997 and 2003 public health expenditures grew on average by almost 4.5% per year. The different growth rates in the public and private sectors have caused the private share of health care spending to fluctuate from a low of 23.0% in 1976 to a high of 30.1% in 2003. (Figure 6)

Figure 6. Growth in Real per Capita Public and Private Health Expenditure and the Private Share, Canada, 1976 to 2003

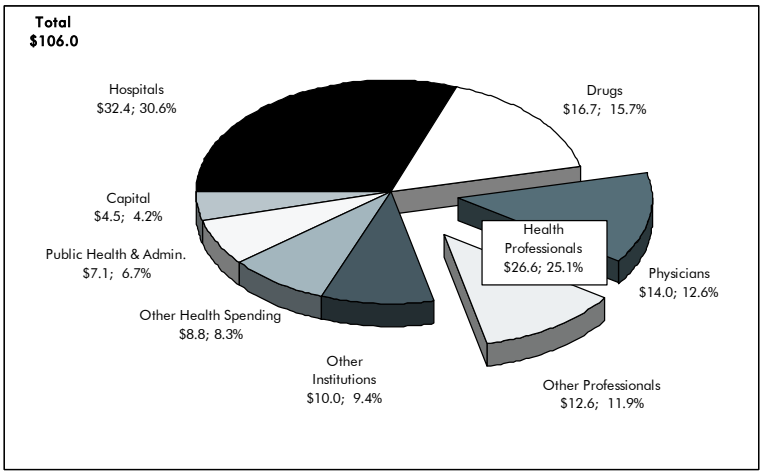


Source: NHEX/CIHI

[8] Expenditure data are obtained from the CIHI publication, *National Health Expenditures Trends, 1975–2003*. For the most recent information on health expenditure trends in Canada, please visit http://www.cihi.ca/nhex.

Health spending is grouped into eight major uses of funds, or categories: Hospitals, Other Institutions, Physicians, Other Professionals, Drugs,[9] Capital, Public Health and Administration, and Other Health Spending. In 2001, the last year which actual spending was available, the largest category of spending was on hospitals at $32.4 billion or 30.6% of total health spending, followed by drugs at $16.7 billion or 15.7%. The third and fourth largest categories of spending were physician services at $14.0 billion or 12.6% and other professionals' services at $12.6 billion or 11.9%, respectively. (Figure 7)

Figure 7. Total Health Expenditure by Use of Funds, Canada, 2001 ($' billions)



Source: NHEX/CIHI

Physician services and other professionals combined account for more than one quarter of health spending in Canada. In 1990, health professionals accounted for $15.7 billion or 25.8% of total health spending. By 2001, expenditures on physicians and other health professionals had grown by $10.8 billion to $26.6 billion; however, its share of total health spending decreased slightly to 25.1%.

The physician category does not include the remuneration of physicians on the payrolls of hospitals or public sector health agencies. These are included in the appropriate category, i.e. hospitals or other health spending, within the National Health Expenditure database. In a special analytical study conducted by CIHI and presented in the 2002 National Health Expenditure Trends annual report, it was estimated that physician and nursing compensation and benefits accounted for approximately 70% of total hospital expenditure in 1999–2000.

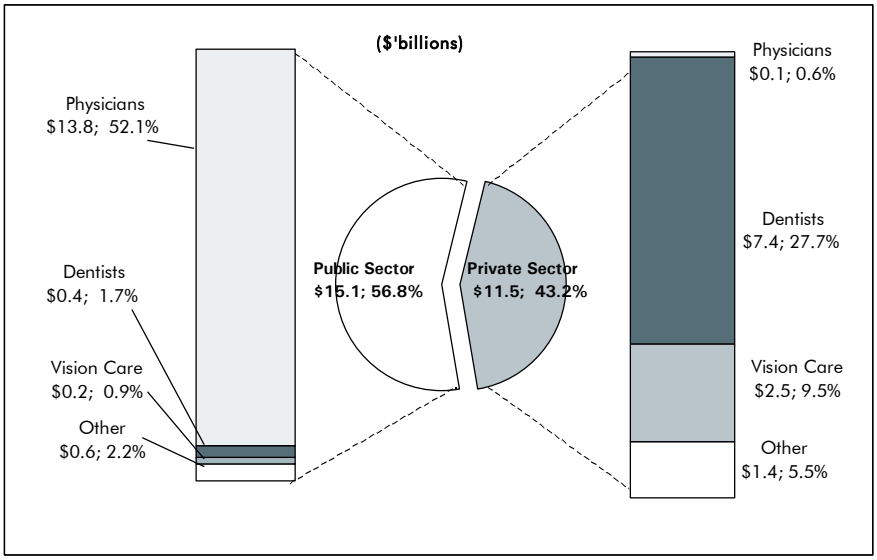
Visit www.cihi.ca for more information.

Physician services and other professionals' expenditure also differ considerably in terms of where the money comes from, or sources of finance. Physician services are primarily financed by the public sector as determined by the Canada Health Act and provincial insurance plans. In 2001, governments and government agencies financed more than 98% of physician services. Other professional services, which consist of dentists, optometrists, physiotherapists, chiropractors, etc, have primarily been financed by private sources. Although some provincial governments insure some services, they are usually targeted

[9] The drug category does not include drugs dispensed in hospitals and generally in other institutions. These are included in the categories of hospitals and other institutions.

to select populations within each jurisdiction and thus do not account for a large component of public sector health spending. The private sector includes individual and group health insurance plans, as well as out-of pocket spending. (Figure 8)

Figure 8. Health Professionals Expenditure by Source of Finance and Type, Canada, 2001



Source: NHEX/CIHI

The National Health Expenditure Database is a macro level health-spending database that captures spending from five sectors of finance: provincial, federal, and municipal governments, provincial/territorial workers' compensation boards, and the private sector. The database also tracks spending for up to 42 uses of funds or categories within each source of finance. Comprehensive health expenditure estimates are released in the annual series National Health Expenditure Trends.

For more information on health expenditures please visit www.cihi.ca or contact the NHEX section by telephone, (613) 241-7860 or by e-mail: nhex@cihi.ca.

Future Directions

"Health information systems are, and will be, complex and difficult to design and implement. Their development can only come in an evolutionary mode, with incremental changes as opportunities or pressures can be exploited for progress."[10]

While general counts, population ratios and limited demographic, education and expenditure information are of value, they only provide part of the picture. Health human resource management requires the consideration of a multiplicity of different factors, such as information on the activity levels of different health professionals and additional demographic and practice pattern information. For many of the health personnel groups included in this publication, this information does not exist or does not exist in a format that is readily accessible and comparable across Canada.

In an effort to provide more comprehensive supply and distribution information for regulated nursing professions in Canada, CIHI in partnership with the nursing regulatory authorities led the development of the Licensed Practical Nurses Database (LPNDB) and the Registered Psychiatric Nurses Database (RPNDB). In 2003, CIHI released the first publications from both LPNDB and RPNDB. These two new publications compliment CIHI's annual publication from the Registered Nurses Database (RNDB).

[10] Martin B. Wilk, Chairman, National Health Information Council. Excerpt from, Health Information for Canada. (1991). Report of the National Task Force on Health Information.

The interdependencies associated with the education and training of health personnel in Canada, in addition to the mobility of the Canadian health labour force (interprovincially and internationally) means that health personnel data collection activities need to be grounded in national health information standards. Standards are required to guide new data development away from the patchwork of "data silos" that currently exist, towards cross-jurisdictional comparability and a vision of an integrated health information system for Canada. Numerous reports (past and present), Ministers and Deputy Ministers of Health, the former Federal/Provincial/Territorial Advisory Committee on Health Human Resources and a host of stakeholder groups in health and education have identified significant information gaps on health personnel and the requirement for data development.

The data needed to support the information-based functions of health human resources (monitoring, evaluation, planning and policy research) have been identified in past documents[11] and more recent work.[12] National minimum data sets do exist for registered nurses and physicians but not for the health professions in general. Various provincial Ministries of Heath are in the process of establishing provincial data standards pertaining to health human resources. CIHI activities in the upcoming years will focus on data development for a broader range of health personnel. In 2004, CIHI will initiate a project to develop a minimum dataset for health human resources in Canada. The HHR Minimum Data Set Project will allow for the development of a comprehensive, national minimum data set to guide HHR data development activities in Canada. For more information on this project, please contact hpdb@cihi.ca.

Concepts and Variables

The following information provides the basic concepts that define the data provided in this publication. A detailed Methodological Notes section follows the Health Personnel Groups section.

Data Year

Refers to data year. HPDB data reflect data as of December of the given year, unless otherwise noted by data providers.

Province/Territory

Unless otherwise noted, the province/territory in which health personnel are registered with an association of regulatory body.

Regulated and Unregulated Health Personnel

The definition of what constitutes a regulated or an un-regulated health personnel group was adopted from information available at the Canadian Information Centre for International Credentials (CICIC) website (www.cicic.ca/factsheets/factsheet2en.stm#2).

During Phase I collection, data providers were asked to define the data being provided in terms of whether it was collected under one of two regulatory environments: regulated or unregulated.

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[11] HHRU 1992:1, Kazanjian A, *Information Needed to Support Health Human Resources Management*. February 1992. ISBN 1-896459-62-5 (http://www.chspr.ubc.ca/cgi-bin/pub?program=hhru&by=date).

[12] *Future Development of Information to Support the Management of Nursing Research: Recommendations*. CIHI, 2001 (http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=GR_149_E).

Subject to Regulation (Regulated)

A regulated health profession is one that is covered by provincial/territorial and/or federal legislation and governed by a professional organization or regulatory authority. The regulatory authority governing the profession has the authority to set entry requirements and license qualified applicants. Employment in a regulated health profession uses a regulated title and requires licensure/registration with the regulatory authority.

Not Subject to Regulation (Unregulated)

An unregulated health profession is one for which there is no legal requirement or restriction on practice with regard to licensure/registration (i.e. registration with a provincial/territorial professional organization is voluntary and not a condition of employment).

Number of Personnel

With the exception of physician, nursing, and Statistics Canada survey data, all data providers were asked to provide data that reflected the following definitions:

- If the personnel group is **not subject to regulation**, requiring membership with a specific regulatory authority as a condition of employment, then the following data was requested:

  TOTAL number of REGISTERED: All individuals who are registered with your organization. The count may include individuals in all registration categories (i.e. active, inactive, honorary, etc.).

  In Table and Figure titles, these data are referred to as the number of MEMBERS.

- If the personnel group **is subject to regulation**, requiring membership with a specific regulatory authority as a condition of employment, then the following data was requested:

  TOTAL number of REGISTERED: All individuals who are registered/licensed with your organization. The count may include individuals in all registration categories (i.e. active, inactive, honorary, etc.).

  TOTAL number of REGISTERED, ACTIVE: All registered/licensed individuals that are legally able to work under the title of the specified health profession. Individuals may or may not be currently employed in the profession.

  TOTAL number of REGISTERED, ACTIVE-EMPLOYED: Personnel that are registered/licensed with your organization, and currently working in the specified health profession.

  In Table and Figure titles, these data are referred to as the number of REGISTERED, ACTIVE REGISTERED or ACTIVE REGISTERED EMPLOYED.

- Administrative nursing (Registered Nurses, Licensed Practical Nurses and Registered Psychiatric Nurses) data for HPDB are derived from the Regulated Nursing Databases (RNDB, LPNDB and RPNDB respectively) at CIHI. Unless otherwise noted, data reflect nurses (Registered Nurses, Licensed Practical Nurses or Registered Psychiatric Nurses) holding an active-practicing licence that are employed in nursing. For more information please see the Methodological Notes section.

  For the purposes of this publication, these data equate to the number of ACTIVE REGISTERED EMPLOYED.

- Administrative physician data for HPDB are derived from the Southam Medical Database at CIHI. Unless otherwise noted, data reflect physicians, registered and unregistered that may be involved in clinical and non-clinical practice. Administrative counts of resident physicians used in HPDB were derived from data provided by the Canadian Post-M.D. Education Registry (CAPER). CAPER data include physicians involved in residency training within the given year, excluding foreign physicians training in Canada by Visa, and physician Fellows receiving medical training/education beyond initial M.D. education. For more information please see Methodological Notes section or visit www.caper.ca.

  SMDB data are not directly comparable to HPDB definitions because SMDB includes non-registered. However, the number of non-registered physicians in SMDB is known to represent < 2% of active family medicine and specialist physicians in the system in any given year.[13] With this limitation in mind, for the purposes of this publication, SMDB data would equate to the number of REGISTERED.

Common Comparable Years (1996 and 2001)

The years 1996 and 2001were selected as the basis of comparison between HPDB data, and the Census and Labour Force Survey data. These were the only common data points within the reference period, 1993–2002.

Common Comparable (CC) Groups

In order to examine total health personnel in Canada from the various data sources (HPDB, Census and the Labour Force Survey) health personnel groups common to all three sources were identified. Appendices D and E identify the 18 of 21 personnel groups included.

An estimate for the health personnel group Registered Psychiatric Nurses (RPNs) was not available from either the Labour Force Survey or the Census. However, the Standard Occupational Classification (SOC 1991) classification D112 Registered Nurses does include RPNs. Therefore, for the purposes of examining the total number of health personnel in Canada, the RPN health personnel group was identified as a CC group and included in CC totals. HPDB common comparable data for Licensed Practical Nurses and Registered Psychiatric Nurses reflect Active, Employed in 2001 and for Physicians reflect "active" including residents (see Data Sources for definition of "active" on the Southam Medical Database).

For Census, all CC groups reflect employed in the labour force in Canada in each year. Labour Force Survey estimates reflect employed and unemployed in the labour force for each year.

[13] Unpublished data provided by Consultant, Physician Databases, Canadian Institute for Health Information (November 14, 2003).

Footnotes and Symbols

The footnotes were added chronologically and therefore follow the sequence of the years, from left to right. Where the footnote is beside the province or institutional name, the information applies to all years in that row.

Standard symbols and numerical presentations are used whenever possible in this report. The symbols include:

..	Information not available.
*	Amount suppressed to protect confidentiality.
	Blank cells indicate that information does not exist for that particular cell.
cv?	The coefficient of variation indicates that this Labour Force Survey estimate is potentially useful for some purposes but may be unreliable.
X	The coefficient of variation indicates that this Labour Force Survey estimate is unreliable.
ng	Estimate not generated.
na	Not applicable.
M	Reader is cautioned to review the Methodological Notes.
❑	Labour Force Survey (LFS) estimate in a figure for which a coefficient of variation was generated.
□	Labour Force Survey (LFS) estimate in a figure for which a coefficient of variation was not generated (e.g. 1993 to 1995).
--❑--	The coefficient of variation for this Labour Force Survey (LFS) estimate in a figure suggests that the estimate is potentially useful for some purposes but may not be reliable.
▲—▲	Trend line between Census years; this line was added by CIHI.
❖	Discussion reflects the comparison of Health Personnel Database (HPDB) data with Labour Force Survey (LFS) and Census estimates.

Health Personnel Groups

Chiropractors

Definition

Chiropractors diagnose health disorders involving the body's structure, particularly the spine, and the functioning of the muscle and nervous systems.

Responsibilities/Activities

General duties of a chiropractor include: taking a patient's case history; conducting a physical examination; observing the patient; taking or ordering X-rays and other tests to diagnose the patient's condition; diagnosing disorders of the spine and other body joints; treating patients whose symptoms result from abnormal musculoskeletal conditions or joint mechanics through the corrective manipulation of the spinal column or other joints and through additional treatments such as heat, light and massage; and advising patients on corrective exercises, lifestyle and nutrition.

Practice Setting

Most chiropractors work in private practice.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) and regulatory/licensing authorities (membership is a condition of employment) across Canada as the primary source of chiropractor data.

Secondary Data Source: This publication utilizes additional data from two survey sources (Labour Force Survey/Statistics Canada and Census/Statistics Canada). Both Census and LFS estimates are based on the 1991 Standard Occupational Classification D022 Chiropractors.

Regulatory Environment

- Chiropractors have been regulated in all provinces in Canada since 1992.

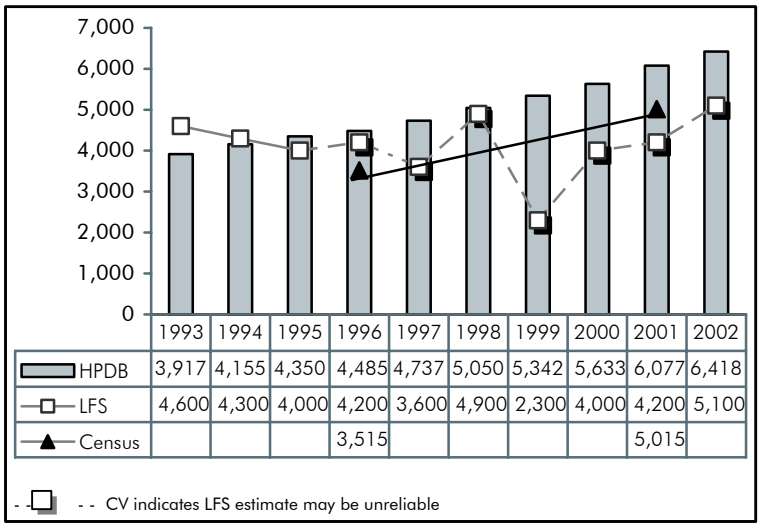
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1992	1962	1972	1958	1974	1925	1945	1960's	1923	1934	1986	..	..

.. Information not available.

Supply Trends

- During the common comparable years of 1996 and 2001, the number of registered chiropractors increased 35.5% in HPDB, the Census estimates of employed chiropractors in the workplace in Canada increased 42.7%, while the Labour Force Survey (LFS) estimates indicated no change when comparing these two years (see Figure Chiro-1).
- Census estimates of the number of employed chiropractors in the workplace in Canada were lower than HPDB counts of registered chiropractors in both years: 21.6% lower in 1996 and 17.5% lower in 2001. Similarly, LFS estimates of the number of chiropractors in Canada were lower than HPDB numbers in both years, however, the coefficients of variation (CVs) indicate these estimates may not be reliable: LFS estimates were 6.4% lower than HPDB in 1996 and 30.9% lower in 2001. LFS estimates did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002.

Figure Chiro-1. Number of Chiropractors from Selected Data Sources, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	3,917	4,155	4,350	4,485	4,737	5,050	5,342	5,633	6,077	6,418
LFS	4,600	4,300	4,000	4,200	3,600	4,900	2,300	4,000	4,200	5,100
Census				3,515					5,015	

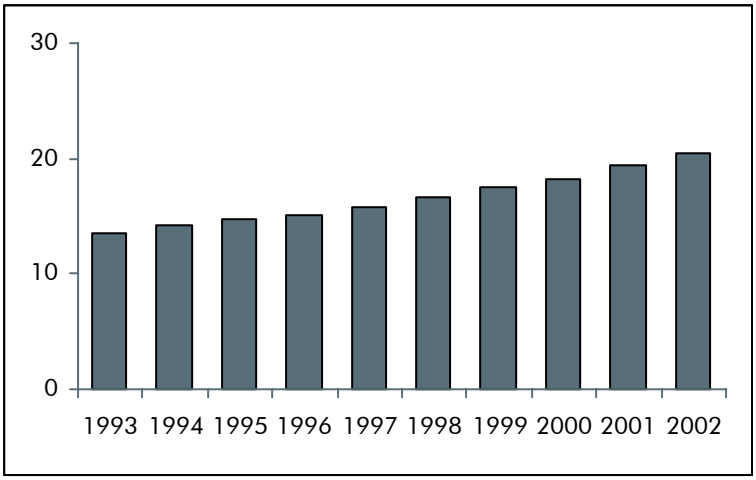
Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

- As shown in Figure Chiro-1 and Table Chrio-1, the number of registered chiropractors, as indicated by the HPDB, increased steadily from 1993 to 2002. There was a 63.8% increase in the number of registered chiropractors in Canada over this ten-year period.
- Table Chiro-1 shows the distribution of registered chiropractors by province from 1993 to 2002. The largest percentage increases over this ten-year period have occurred in the Atlantic Provinces.

Growth in Supply Relative to Population

- The rate of increase for chiropractors reported in HPDB, has been greater than the population growth rate, resulting in a greater number of chiropractors per 100,000 population across Canada. The number of chiropractors per 100,000 population in Canada increased 50.0% from 13.6 in 1993 to 20.4 in 2002 (see Figure Chiro-2 and Table Chiro-2). Over this same time period the Canadian population increased by 9.1%.

Figure Chiro-2. Number of Registered Chiropractors* per 100,000 Population, Canada, 1993–2002



Source: HPDB/CIHI

* This data includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

- Table Chiro-2 shows in 2002 the highest number of registered chiropractors per 100,000 population was in Ontario (25.7), Alberta (24.7), Manitoba (21.5), and British Columbia (20.5). These four provinces had registered chiropractors per 100,000 population above the Canadian ratio; the remainder of the provinces were the same or below. The four Atlantic Provinces were well below the Canadian ratio, with Prince Edward Island having the lowest number of chiropractors per 100,000 population at 5.7. However, growth in the number of chiropractors between 1993 and 2002 in the Atlantic region has been higher than in the rest of Canada.

Accessing Personnel

- The public typically accesses chiropractors directly, rather than through referrals from other health professionals.

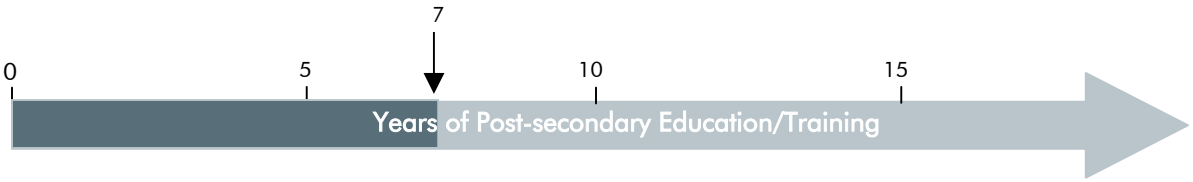
Factors That May Influence Demand for Personnel**

- A growing interest in complementary and alternative or integrative medicine at medical schools.
- Removing barriers to access.
- Offering chiropractic education in university setting(s).
- Providing patients with a full range of choice of health treatment.
- Changes in the Canada Health Act to include those areas typically considered outside that group of services termed as "medically necessary".
- Integrating chiropractic services into Canada's mainstream health care system.

What Else Do We Know?

- The average age of chiropractors has remained around 40 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- In the past chiropractors tended to be male, however, the percentage of females in the chiropractic profession has increased from 16% in 1991 to 28% in 2001 (Source: Census Data, Statistics Canada).
- The numbers of degree graduates of chiropractic schools are presented in Table Chiro-3.

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
3–4	All provinces except Quebec—3 years undergraduate and then a 4 year Doctor of Chiropractic Degree.
2–5	In Quebec—2 years health sciences CEGEP (collège d'enseignement général et professionnel) and then a 5 year Doctor of Chiropractic Degree.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Chiropractic Association (see Appendix B for the survey tool).

Changes to Education and/or Training Requirements

- There are no expected changes.

Possible Areas of Certified Specialization

- Radiology
- Sports
- Orthopedics
- Chiropractic Sciences
- Rehabilitation

Graduates

- The number of graduates from the Canadian Memorial Chiropractic College in Ontario is shown in Table Chiro-3. From 1993 to 2002, there has been an increase of 9.4% in the number of graduates from this school. The second Canadian chiropractic school was established at the Université du Québec à Trois Rivières, with its first graduates completing the program in 1998. Since this time there has been a fairly consistent number of graduates each year.

What's Happening?

Listed are references to key research documents relating to chiropractors that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *Canadian Chiropractic Resources Databank*, The Canadian Chiropractic Association, 2003. Contact: jtucker@ccachiro.org

Research in Progress

- Information not available at this time.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Chiropractic Association (see Appendix B for the survey tool).

Data Tables

Table Chiro-1. Number of Registered Chiropractors* by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	17	20	20	20	22	26	33	39	43	46
P.E.I.	2	2	3	4	6	6	7	7	7	8
N.S.	*23* [2]	*33* [2]	*29* [2]	*30* [2]	*35* [2]	45	51	62	*73* [2]	82
N.B.	32	34	34	36	40	43	46	48	57	58
Que.	810	827	845	872	870	918	956	979	1,017	1,053
Ont.	1,846	1,999	2,117	2,171	2,293	2,424	2,550	2,708	2,884	3,108
Man.	152	159	170	173	184	176	192	202	251	247
Sask.	123	124	131	129	137	145	155	162	183	183
Alta.	*400* [2]	*436* [2]	*447* [2]	*472* [2]	*499* [2]	573	620	683	728 [3]	772 [3]
B.C.[1]	*510* [2]	519	551	576	647	685	721	734	826	853
Y.T.	*2* [2]	*2* [2]	*3* [2]	*2* [2]	*4* [2]	*9*	*11*	*9*	*8*	*8*
N.W.T.	..	..	..	..	..	..	..	..	..	..
Canada	***3,917***	***4,155***	***4,350***	***4,485***	***4,737***	***5,050***	***5,342***	***5,633***	***6,077***	***6,418***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized cells* in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

.. Information not available.

1. The count includes regular members, new grads, senior members, and special members.
2. Data is provided by the Canadian Chiropractic Association (CCA). Membership with the CCA is voluntary.
3. The count represents active licensed chiropractors.

Table Chiro-2 Number of Registered Chiropractors per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	2.9	3.5	3.5	3.6	4.0	4.8	6.1	7.3	8.1	8.7
P.E.I.	1.5	1.5	2.2	2.9	4.4	4.4	5.1	5.1	5.0	5.7
N.S.	*2.5*	*3.6*	*3.1*	*3.2*	*3.7*	4.8	5.4	6.6	*7.7*	8.7
N.B.	4.3	4.5	4.5	4.8	5.3	5.7	6.1	6.4	7.5	7.7
Que.	11.3	11.4	11.6	12.0	11.9	12.5	13.0	13.2	13.7	14.1
Ont.	17.2	18.4	19.2	19.4	20.3	21.2	22.0	23.0	24.1	25.7
Man.	13.6	14.1	15.0	15.2	16.2	15.5	16.8	17.6	21.9	21.5
Sask.	12.2	12.3	12.9	12.6	13.4	14.1	15.1	15.9	18.0	18.1
Alta.	*14.9*	*16.0*	*16.2*	*16.8*	*17.4*	19.5	20.8	22.5	23.6	24.7
B.C.	*14.1*	13.9	14.4	14.7	16.2	17.1	17.8	18.0	20.0	20.5
Y.T.	*6.7*	*6.6*	*9.5*	*6.2*	*12.5*	*29.0*	*35.8*	*29.8*	*26.6*	*26.9*
N.W.T.	..	..	..	..	..	..	..	..	..	..
Canada	***13.6***	***14.3***	***14.8***	***15.1***	***15.8***	***16.7***	***17.5***	***18.3***	***19.5***	***20.4***

Source: HPDB/CIHI

Notes

.. Information not available.

See Table Chiro-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratio in Table Chiro-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Table Chiro-3. Number of Graduates of Chiropractic Schools by School of Graduation, Canada, 1993–2002

School	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Ont.										
CMCC[1], Toronto	138	138	135	152	152	149	154	152	151	151
Que.										
UQTR[2], Trois-Rivières	..	..	..	..	..	45	44	45	42	45
Canada	**138**	**138**	**135**	**152**	**152**	**194**	**198**	**197**	**193**	**196**

Source: HPDB/CIHI

Notes
.. Information not available.
1. Canadian Memorial Chiropractic College.
2. Université du Québec à Trois Rivières; first graduating class occurred in 1998.

Endnotes

Sources

Figure Chiro-1. Calculated from data in Table Chiro-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure Chiro-2. Calculated from data in Table Chiro-2.

Table Chiro-1. 1993–1997: Canadian Chiropractic Association, Prince Edward Island Chiropractic Association, New Brunswick Chiropractors' Association, Ordre des Chiropracticiens du Québec, College of Chiropractors of Ontario, Manitoba Chiropractors/Association, The Chiropractors' Association of Saskatchewan, British Columbia College of Chiropractors.

1998–2002: Newfoundland and Labrador Chiropractor Board, Prince Edward Island Chiropractic Association, Board of the Nova Scotia College of Chiropractors, New Brunswick Chiropractors' Association, Ordre des Chiropracticiens du Québec, College of Chiropractors of Ontario, Manitoba Chiropractors/Association, The Chiropractors' Association of Saskatchewan, College of Chiropractors of Alberta, British Columbia College of Chiropractors, Yukon Department of Justice.

Table Chiro-2. Data calculated based on Table Chiro-1 and population estimates from Statistics Canada shown in Appendix C.

Table Chiro-3. Canadian Chiropractic Association

Dental Hygienists

Definition

Dental hygienists are regulated primary oral health care professionals.

Responsibilities/Activities

Dental hygienists have five primary areas of responsibility. Health promotion, which is the process of enabling people to increase their awareness of, responsibility for, control over, and improvement of their health and well-being. Education, which includes the application of teaching and learning principles to facilitate the development of specific attitudes, knowledge, skills, and behaviours. Clinical therapy, which is the primary, interceptive, therapeutic, preventive and ongoing care procedures to help people obtain optimal oral health. Research, which involves strategies for systematic inquiry and reporting that supplement, revise, and validate dental hygiene practice, and that may contribute to the knowledge base of other disciplines. And finally, Administration, which involves managing processes, policies and protocol development around oral health. Dental hygienists also play a leadership role in patient advocacy relative to oral health.

Practice Setting

Dental hygienists are typically found working as part of a dental care team; however, other employment arrangements are increasingly common including self-employment. Dental hygiene practice environments include: clinical practice, institutions, public health and community health, home care and other outreach programs, primary health care centres, educational institutions, the military, research, industry, consulting firms, regulatory bodies and professional associations, government, and forensic laboratories.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) and regulatory/licensing authorities (membership is a condition of employment) across Canada as the primary source of dental hygienist data.

Secondary Data Source: Both Census and Labour Force Survey estimates are based on the 1991 Standard Occupational Classification D222 Dental Hygienists and Dental Therapists.

Regulatory Environment

- The last province to regulate dental hygiene was British Columbia (1995). In the Territories, the respective territorial governments register/license dental hygienists.

	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1969	1974	1973	1950's	1975	1960	1952	1950	1990	1995	1958	1990	REG

REG = Regulated in 2002 but initial year of regulation is unknown.

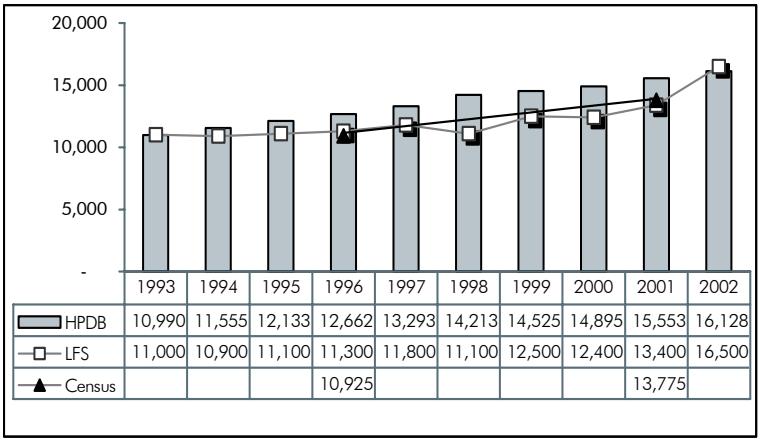
Supply Trends

- Figure DH-1 illustrates that during the common comparable years of 1996 and 2001, the number of registered dental hygienists increased 22.8% in HPDB, the Census estimates of employed dental hygienists in the workplace in Canada increased 26.1% and the Labour Force Survey (LFS) estimates increased 18.6%.
- Census estimates of the number of employed dental hygienists in the workplace in Canada were lower than HPDB counts of registered dental hygienists in both years: 13.7% lower in 1996 and 11.4% lower in 2001. Similarly, LFS estimates of dental hygienists over the same period were lower that HPDB counts: 10.8% lower than HPDB in 1996 and 13.8% lower in 2001 (coefficients of variation indicate that LFS estimates are reliable from 1996 to 2002—see Appendix D). With some exceptions, LFS estimates did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002.

M

- As shown in Figure DH-1, the number of licensed dental hygienists, as indicated by the HPDB, has increased steadily from 1993 to 2002. This represents a 46.8% increase in the number of licensed dental hygienists over this ten-year period. The fact that British Columbia did not regulate dental hygienist until 1995 may influence observed trends in the data between 1993 and 2002.
- Provincially, the largest percentage increases over this ten-year period have occurred in Alberta (77.4%), Prince Edward Island (57.1%) and Saskatchewan (49.7%). Note: Newfoundland and Labrador had an increase of 86.4%, however, it is based on generated data estimates for 1993–1997 (see Table DH-1, which shows the number of licensed dental hygienists by province from 1993–2002 as reported in the HPDB).

Figure DH-1. Number of Dental Hygienists from Selected Data Sources, Canada, 1993–2002



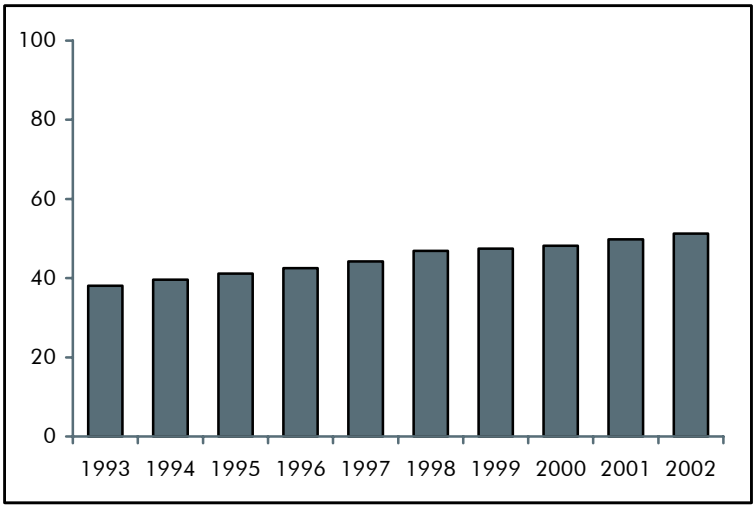
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	10,990	11,555	12,133	12,662	13,293	14,213	14,525	14,895	15,553	16,128
LFS	11,000	10,900	11,100	11,300	11,800	11,100	12,500	12,400	13,400	16,500
Census				10,925					13,775	

Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

Growth in Supply Relative to Population

- The rate of increase of dental hygienists, as reported in HPDB, has been greater than the population growth rate, resulting in an increasing number of dental hygienists per 100,000 population across Canada. The number of dental hygienists per 100,000 population in Canada increased 34.6% from 38.1 in 1993 to 51.3 in 2002 (see Figure DH-2). Over this same time period the Canadian population increased by 9.1%.

Figure DH-2. Number of Registered Dental Hygienists* per 100,000 Population, Canada, 1993–2002



Sources: HPDB/CIHI; Statistics Canada (Population Estimates)

* This data includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

- Table DH-2 shows in 2002 the highest number of dental hygienists per 100,000 population was in Ontario (58.6) and Manitoba (51.4). These two provinces were the only ones that had dental hygienists per 100,000 population above the Canadian ratio; the remainder of the provinces had ratios that were the same or below the national ratio. The province with the lowest per 100,000 population was Newfoundland and Labrador at 15.4.

Accessing Personnel**

- Access to dental hygienists typically occurs when clients visit a dentists office, however, other points of access are increasingly common. For these alternative points of access, referrals are generally not required, however, any health professional such as a physician, nurse, nurse practitioner, dentist, public health professional, and long-term care facility staff may refer clients.

Factors That May Influence Demand for Personnel**

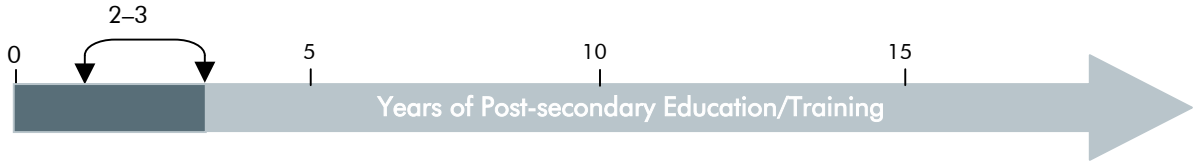
- Increased numbers of oral health promotion programs.
- An increase in the number of private employer health plans that include coverage for oral health services.
- Oral health services covered by Medicare.
- Increased funding for the oral health component of the Federal Government, Non-Insured Health Benefits Program.
- Raising the standard of living.
- Better transportation for homebound, frail seniors and persons with disabilities.
- Increased public awareness about the link between oral health and general health.

What Else Do We Know?

- The average age of dental hygienists employed in Canada increased from 32 years in 1991 to 36 years in 2001(Source: Census Data, Statistics Canada).
- In 2001, the majority (98%) of dental hygienists were female (an increase from 96% in 1991)(Source: Census Data, Statistics Canada).
- The number of graduates of dental hygiene schools is presented in Table DH-3.
- The number of graduates of schools of dental hygiene increased by 40.4%, rising from 542 in 1993 to 761 in 2002 (see Table DH-3). Caution must be exercised when interpreting this increase because not all schools of dental hygiene reported data. Additionally in more recent years some schools have increased the length of the education/training program.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Dental Hygienists Association (see Appendix B for the survey tool).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
2	Alberta, British Columbia, Manitoba, Nova Scotia, and Ontario—Diploma obtained through a college or university program.
2	Saskatchewan—Diploma obtained at a college.
3	Quebec—Diploma obtained at a CEGEP.
	New Brunswick—regulatory/licensing authority recognizes diploma from an accredited dental hygiene program.
	Newfoundland and Labrador—regulatory/licensing authority recognizes dental hygiene program accredited by the Commission on Dental Accreditation in Canada and must have passed the National Dental Hygiene Certification Board Exam.
	Northwest Territories—must have graduated from a college, school or university and be licensed to practice in a province or territory to be registered/licensed.
	Nunavut—regulatory/licensing authority recognizes diploma obtained at a college or university.
	Yukon Territory—regulatory/licensing authority recognizes diploma obtained at a college in Canada or Northern Arizona University.
	Prince Edward Island—regulatory/licensing authority recognizes diploma from an accredited dental hygiene program.

Changes to Education and/or Training Requirements

- The Canadian Dental Hygienists Association supports a move towards a Baccalaureate degree (4 years) as the entry to practice education requirement by 2005.
- More information on requirements to practice in dental hygiene is available from the Canadian Dental Hygienists Association (www.cdha.ca) or the Canadian Information Centre for International Credentials (www.cicic.ca).

Possible Areas of Certified Specialization

- Local anesthetic is a certified specialty in Saskatchewan, Alberta, and the Yukon Territory.
- Orthodontics is a certified specialty in Newfoundland and Labrador, Nova Scotia, Ontario, Manitoba and Alberta.
- Residential care is a certified specialty in British Columbia.
- Restorative care is a certified specialty in Newfoundland and Labrador, Nova Scotia, Ontario and Saskatchewan.

Special Note
British Columbia—local anesthesia, some orthodontic procedures and some restorative procedures are part of the regular curriculum in British Columbia.
Quebec—orthodontic procedures and some restorative procedures are part of the regular curriculum.
Newfoundland and Labrador—local anesthesia is an additional competency, but it does not require certification.

What's Happening?

Listed are references to key research documents relating to dental hygiene that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. Canadian Dental Hygienists Association (CDHA): *Access Angst: A CDHA position paper on access to oral health services*. CDHA, March 23, 2003
2. Johnson, P.M.: *Dental Hygiene Practice in Canada 2001, a report prepared for the Canadian Dental Hygienists Association (CDHA)*. CDHA, Ottawa, September 2002
3. Manga, P.: *The Political Economy of Dental Hygiene in Canada*. Canadian Dental Hygienists Association, Ottawa, July 2002
4. Canadian Dental Hygienists Association (CDHA): *Policy Framework for Dental Hygiene Education in Canada 2005*. CDHA, Ottawa, October 2000
5. Cobban, S.: *Distance Delivery Model for Dental Hygiene [thesis]*. Athabasca, Alberta, Athabasca University, March 2000
6. Brownstone, Ellen G.: *A qualitative study of the occupational status and culture of dental hygiene in Canada [thesis]*. Winnipeg, MN: University of Manitoba, 1999
7. Keenan, L.P.: *Preparatory requirements for Dental Hygienists [thesis]*. Edmonton, Alberta: University of Alberta, 1995
8. Manga, P., Campbell, T.: *Health human resources substitution: a major area of reform towards a more cost-effective health care system*, Ottawa, ON: University of Ottawa, 1994 (Queen's-University of Ottawa Economic Projects)
9. Lautar, C.: *The changing directions of the dental hygienist [thesis]*. Calgary, AB: University of Calgary, 1992
10. Johnson, P., and Van Lierde, L.: *International profile of Dental Hygiene*. Board of Directors of the International Dental Hygienists' Federation, July 1992
11. Canadian Dental Hygienists Association (CDHA): *History of Dental Hygiene in Canada*. CDHA, Ottawa, 1988

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Dental Hygienists Association (see Appendix B for the survey tool).

Research in Progress

1. Oral Health Labour Market in Canada Sector Study (Outcome: To develop a labour market strategy for the oral health sector.) http://www24.hrdc-drhc.gc.ca/def/proj/index.asp?VarParam=16&Param_Lang=0&Switch=index.asp

   Name of organization undertaking the study: Oral Health Care Sector Study.

   The stakeholders include the following: Canadian Dental Association, Canadian Dental Hygienists Association, Canadian Dental Assistants Association, Denturist Association of Canada, and College of Dental Technologists of Ontario.

   Secretariat for the study: Canadian Dental Association

Data Tables

Table DH-1. Number of Registered Dental Hygienists* by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	*44* [7]	*49* [7]	*54* [7]	*63* [7]	*68* [7]	69	69	69	78	82
P.E.I.	28	28	30	30	28	33	38	43	46	44
N.S.	318	334	374	396	404	407	420	412	*408* [7]	459
N.B.	*172* [7]	*183* [7]	*194* [7]	*202* [7]	*210* [7]	223	240	247	245	246
Que. [1]	2,595	2,736	2,951	3,105	3,292	3,458	3,565	3,620	3,667	3,691
Ont.	4,890	5,069	5,170	5,392	5,637	6,227	6,322	6,540	6,756 [9]	7,101 [9]
Man. [2]	458	469	498	513	517	534	550	562	565	591
Sask.	*205* [7]	*219* [7]	*232* [7]	*242* [7]	*259* [7]	282	267	273	300	307
Alta. [3]	903 [8]	974 [8]	1,046 [8]	1,101 [8]	1,168 [8]	1,213	1,251	1,305	1,541	1,602
B.C. [4]	*1,363*	*1,479*	1,562	1,593	1,683	1,740	1,777	1,788	1,910	1,974
Y.T. [5]	11	11	12	12	12	12	12	15	16	14
N.W.T. [6]	3	4	10	13	15	15	14	21	21	17
Canada	***10,990***	***11,555***	***12,133***	***12,662***	***13,293***	**14,213**	**14,525**	**14,895**	***15,553***	**16,128**

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized cells* in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

1. Quebec data as of March 31.
2. Manitoba data as of January 15 for 2001 and 2002.
3. Alberta data as of October 31.
4. British Columbia data as of August 31.
5. Yukon data as of March 31, except in 2001 and 2002 data as of November 14.
6. Northwest Territories data as of March 31, except in 2002 data as of November 12.
7. CIHI estimate.
8. The figure includes only those members who were actively practicing dental hygiene; it does not include registrants who were out of practice due to maternity or disability leaves during the year.
9. Data includes General, Specialty, and Inactive members. Inactive members are not able to practice; however, they are able to participate in elections.

Table DH-2. Number of Registered Dental Hygienists per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	*7.6*	*8.6*	*9.5*	*11.3*	*12.4*	*12.7*	*12.8*	*12.9*	*14.6*	*15.4*
P.E.I.	21.1	20.8	22.1	22.0	20.5	24.0	27.5	31.1	33.0	31.4
N.S.	34.4	36.0	40.2	42.4	43.2	43.4	44.5	43.7	43.2	48.6
N.B.	*22.9*	*24.4*	*25.8*	*26.9*	*27.9*	*29.6*	*31.7*	*32.7*	*32.4*	*32.5*
Que.	36.1	37.9	40.7	42.6	45.0	47.1	48.4	48.9	49.3	49.4
Ont.	45.5	46.5	46.9	48.3	49.8	54.4	54.5	55.5	56.5	58.6
Man.	40.9	41.7	44.0	45.2	45.5	46.9	48.1	49.0	49.2	51.4
Sask.	*20.3*	*21.7*	*22.8*	*23.7*	*25.3*	*27.5*	*26.1*	*26.8*	*29.6*	*30.4*
Alta.	33.6	35.8	37.9	39.2	40.7	41.4	42.0	43.0	49.9	51.2
B.C.	*37.6*	*39.6*	*40.7*	*40.6*	*42.2*	*43.4*	*43.9*	*43.9*	*46.3*	*47.6*
Y.T.	36.7	36.3	38.1	37.4	37.6	38.6	39.1	49.6	53.2	47.0
N.W.T.	7.4	9.7	24.0	31.2	36.2	36.7	34.2	51.2	51.0	41.0
Canada	***38.1***	***39.6***	***41.1***	***42.5***	***44.2***	***46.9***	***47.5***	***48.2***	***49.8***	***51.3***

Source: HPDB/CIHI

Note

See Table DH-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratio in Table DH-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Table DH-3. Number of Graduates of Dental Hygiene Schools[1] by School of Graduation, Canada, 1993–2002

School	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.S.										
Dalhousie University	42	39	39	39	40	40	36	38	36	36
Que.										
Collège Édouard-Monpetit	23	27	30	25	47	48	42	38	39	39
John Abbott College	24	28	28	36	26	30	27	34	24	27
Collège de l'Outaouais	22	21	17	14	20	20	22	19	14	9
Cégep de Chicoutimi	19	26	30	27	29	31	32	30	24	19
Cégep de Trois-Rivières	34	33	25	25	26	31	35	29	74	22
Cégep de Sainte-Hyacinthe	32	27	26	34	33	36	29	32	24	24
Collège de Maisonneuve	57	65	59	58	52	51	53	45	53	45
Ont.										
Cambrian—Sudbury	20	20	24 [3]	24	23	24	0 [4]	29	25	24
Canadore—North Bay	15	22	16	15	15	13	14	14	16	18
Confederation—Thunder Bay	16	16	16	19	16	18	15	16	18	18
Durham—Oshawa	23	21	23	24	22	17	23	23	22	25
Algonquin CAAT—Ottawa	46	46	48	47	43	0 [5]	37	49	50	48
Cité collégiale—Ottawa	11	16	13	18	12	17	0 [6]	15	18	11
Fanshawe—London	18	18	17	18	25	22	31	22	33	22
Georgian—Barrie	10	12	14	12	17	13	13	14	16	20
Collège Boréal[2]	..	..	..	22	21	11	1	15	14	20
Niagara College	20	31	33	32	0 [6]	76 [7]	1	36	38	41
George Brown College	..	..	..	..	..	67	65	65	65	66
St. Clair College	..	..	..	..	..	32	30	26	30 [8]	0 [6]
Canadian Institute of Dental Hygiene	..	..	..	..	..	..	..	..	..	71 [9]
Man.										
University of Manitoba	22	23	28	25	26	24	25	26	27	26
Sask.										
Saskatchewan Institute of A.A. and Tech.	..	..	..	..	..	..	..	..	24	24
Alta.										
University of Alberta	47	63	62	60	48	39	38	40	96	51
B.C.										
Camosun College	0	23	21	24	24	23	21	22	19	18
Vancouver Community College	21	18	19	19	19	16	19	21	20	18
College of New Caledonia	20	20	18	14	23	19	20	20	18	19
University of British Columbia	..	3	2	1	1	.. [10]	..	..	..	..
Canada	**542**	**618**	**608**	**632**	**608**	**718**	**629**	**718**	**837**	**761**

Source: HPDB/CIHI

Notes

.. Information not available.

1. Not all schools in Canada are represented (University of Toronto and Cégep Francois Xavier Garneau did not report).
2. The program for Dental Hygienists began in September 1995, with the first graduates in 1996.
3. Figures up to 1995 include students registered in a bilingual program. 1995 was the last year for this program.
4. No graduating class as program requirement changed to 2-year direct entry program after completion of Dental Assistant program.
5. No graduating class as program entry requirements changed, requiring completion of Dental Assistant program and 1 year of work experience before entering Dental Hygiene program.
6. No graduating class due to a change from one-year to two-year program length.
7. Represents double student intake in previous year.
8. Program has changed to a 2-year program as of 2001; therefore, there will be no graduates in 2002.
9. Program existed prior to 2002, however, became accredited in 2002.
10. Dental Hygiene program discontinued.

Endnotes

Sources

Figure DH-1. Calculated from data in Table DH-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure DH-2. Calculated from data in Table DH-2.

Table DH-1. Dental Council of PEI, Provincial Dental Board of Nova Scotia, New Brunswick Dental Society, Ordre des Hygiénistes Dentaires du Québec, College of Dental Hygienists of Ontario, Manitoba Dental Association, Saskatchewan Dental Hygienists' Association, Alberta Dental Hygienists' Association, The College of Dental Hygienists of British Columbia, The Newfoundland and Labrador Dental Board, and the Governments of the Yukon and Northwest Territories.

Table DH-2. Data calculated based on Table DH-1 and population estimates from Statistics Canada shown in Appendix C.

Table DH-3. Individual schools, colleges and universities.

Dentists

Definition

Dentists diagnose and treat diseases, conditions and disorders of the teeth, mouth and surrounding tissues and structures to improve general health.

Responsibilities/Activities

The main duties of dentists include: examining patients' teeth, gums, and surrounding tissues and structures to diagnose disease and injury, and plan appropriate treatment; restoring and extracting diseased teeth; performing surgical treatments in the mouth and oral-facial complex; cleaning teeth and instructing patients on oral hygiene; designing and fitting prosthetic appliances to replace missing teeth and structures, or writing fabrication instructions or prescriptions for use by denturists and dental technicians; correcting abnormal positioning of the teeth and jaws; and supervising dental hygienists, dental assistants and other staff.

Some dentists specialize in areas such as oral and maxillofacial surgery, orthodontics and dentofacial orthopedics, paediatric dentistry, periodontics, endodontics, prosthodontics, oral medicine and pathology, oral and maxillofacial radiology or public health dentistry.

Practice Setting

Most dentists work in private practice clinics, hospitals, universities or public health facilities.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from regulatory/licensing authorities (membership is a condition of employment) across Canada as the primary source of dentist data.

Secondary Data Source: This publication utilizes additional data from two survey sources (Labour Force Survey/Statistics Canada and Census/Statistics Canada). Both Census and LFS estimates are based on the Standard Occupational Classification D013 Dentists.

Regulatory Environment

- Licensure with a provincial/territorial regulatory authority has been a condition of employment for dentists in Canada for the better part of the past century.

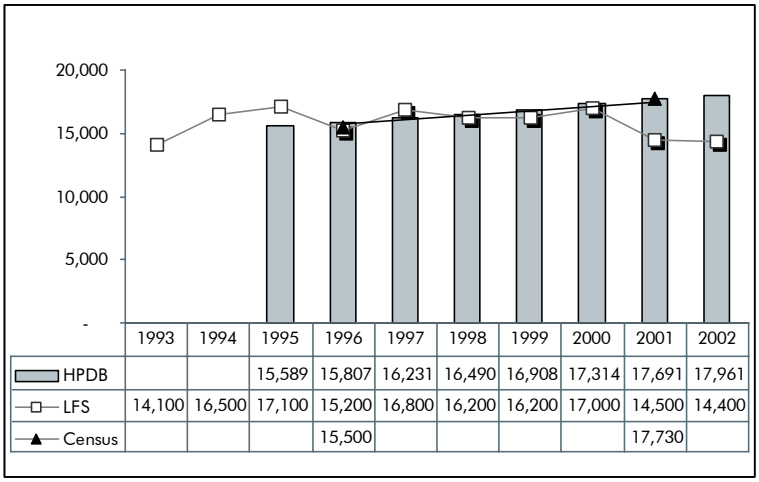
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1893	1891	1891	1890	1869	1867	1883	1906	1906	1886	1958	1889	REG

REG = Regulated in 2002 but initial year of regulation is unknown.

Supply Trends

- During the common comparable years of 1996 and 2001, HPDB counts of active registered dentists increased 11.9%, the Census estimates of employed dentists in the workplace in Canada increased 14.4%, while the Labour Force Survey (LFS) estimates indicate a 4.6% decrease when comparing these two years (see in Figure Dent-1).
- Census estimates of employed dentists in the workplace in Canada were lower than HPDB counts in 1996 and slightly higher than HPDB counts in 2001: 1.9% lower in 1996 and < 0.2% higher in 2001. LFS estimates for the same years are lower than HPDB counts: 3.8% lower in 1996 and 18.0% lower in 2001. LFS estimates did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002.

Figure Dent-1. Number of Dentists from Selected Data Sources, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB			15,589	15,807	16,231	16,490	16,908	17,314	17,691	17,961
LFS	14,100	16,500	17,100	15,200	16,800	16,200	16,200	17,000	14,500	14,400
Census				15,500					17,730	

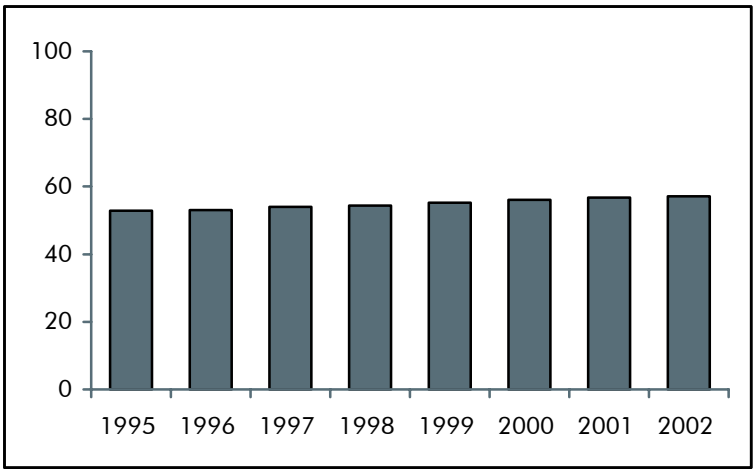
Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

- Data for 1993 and 1994 was not available. As shown in Figure Dent-1, the number of active registered dentists has increased steadily from 1995 to 2002. This represents a 15.2% increase in the number of active registered (licensed) dentists over this eight-year period.
- Table Dent-1 shows the distribution of active registered dentists by province from 1995 to 2002. The majority of provinces experienced growth over this eight-year period. With the largest percent increase occurring in Prince Edward Island (29.2%), British Columbia (19.6%), Ontario (19.3%) and Alberta (17.3%).

Growth in Supply Relative to Population

- In 2002, there were 57.1 active registered dentists per 100,000 population in Canada (see Figure Dent-2).
- Table Dent-2 shows in 2002, provincially, the greatest number of dentists per 100,000 population was in British Columbia (65.5) and Ontario (62.3). These two provinces were the only ones that had licensed dentists per 100,000 population above the Canadian ratio; the remainder of the provinces were the same or below. The province with the lowest per 100,000 population was Newfoundland and Labrador (29.2).

Figure Dent-2. Number of Active Registered Dentists* per 100,000 Population, Canada, 1995–2002



Source: HPDB/CIHI

*This data includes registered data (membership with a specific data provider is required as a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

- Prince Edward Island had the largest percent increase (24.9%) in the number of active registered dentists per 100,000 population between 1995 to 2002.

Accessing Personnel

- A referral is not required to access a dentist.
- The primary drivers for accessing dentists tend to be whether or not people have insurance for dental care in their private insurance plans.

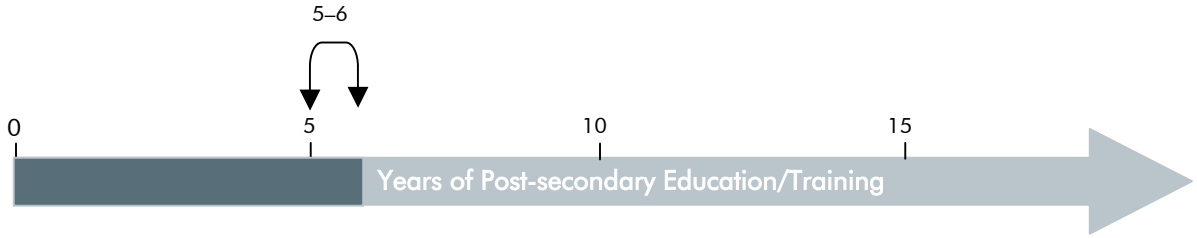
Factors That May Influence Demand for Personnel

- Information is not available at this time.

What Else Do We Know?

- The average age of dentists increased from 42 to 44 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- As of 2001, 73% of the dentists were male (Source: Census Data, Statistics Canada).
- Data on the number of graduates of schools of dentistry in Canada are available in Table Dent-11.

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
4	Four year university degree program (exception in Quebec). With 1–2 years of pre-dental university courses required prior to applying to dental school.
5	Université de Montréal has a pre-dental year making their program 5 years.

Changes to Education and/or Training Requirements

- There are no anticipated changes.

Possible Areas of Certified Specialization

1. Dental Public Health
2. Endodontics
3. Oral and Maxillofacial Surgery
4. Orthodontics and Dentofacial Orthopedics
5. Oral and Maxillofacial Radiology
6. Oral Medicine and Pathology
7. Pediatric Dentistry
8. Periodontics
9. Prosthodontics

What's Happening?

Listed are references to key research documents relating to dentists that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. American Dental Association, Health Policy Resources Centre. 2001 *American Dental Association dental workforce model: 1999–2020*. Chicago: American Dental Association; 2001a.
2. Brown LJ. *Dental work force strategies during a period of change and uncertainty*. J Dent Educ 65(12):1404-1416, 2001.
3. Murdock SH, Hogue MN. *Current patterns and future trends in the population of the United States: implications for dentistry and the dental profession in the twenty-first century*. J Am Coll Dentists 1998 Winter; 65:29-35.
4. American Dental Association, Health Policy Resources Centre. 2001 *American Dental Association dental workforce model: 1999–2020*. Chicago: American Dental Association; 2001b.
5. DeVany AS, House DR, and Saving TR. *The role of patient waiting time in the pricing of dental services: the fee-provider density relation explained*. Southern Econ J 1983;49:669-80.
6. Beazoglou T, Heffley D, and Bailit H. *Output and productivity in dental care*. In: Brown LJ, Nash KD, eds. Studies of dental workforce. Dental health policy analysis series. Chicago: American Dental Association; 2001.
7. Cooksey JA. *Challenges for dentists and pharmacists*. Health Resources and Services Administration, Bureau of Health Profession Research Analysis and Activity. Health Newslink 1999 Fall; 6:1.
8. Beazoglou T, Bailit H and Heffley D. *Analysis of dental workforce, population needs, and policy options in Wisconsin for the next 10 years*. Report to the Wisconsin Dental Association. Farmington, CT: University of Connecticut Health Center; 2001.
9. International Communications Research (ICR). *In : Dental Health Policy Analysis Series: 1999 Workforce Needs Assessment Survey*: Rev. Ed. Chicago: American Dental Association; 2000.

Research in Progress

1. Oral Health Labour Market in Canada Sector Study. Co-funded by Human Resources Development Canada. Project Coordinator: Costa Papadopoulos, Canadian Dental Association. cpapadopoulos@cda-adc.ca

   http://www24.hrdc-drhc.gc.ca/def/proj/index.asp?VarParam=16&Param_Lang=0&Switch=index.asp

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Dental Association (see Appendix B for the survey tool).

Data Tables

Table Dent-1. Number of Active Registered Dentists* by Province/Territory, Canada, 1993–2002

	1993 [1]	1994 [1]	1995 [2]	1996 [3]	1997	1998 [4]	1999	2000	2001	2002
N.L.	..	..	144	143	150	147	158	164	163	155
P.E.I.	..	..	48	48	51	53	57	60	61	62
N.S.	..	..	431	428	430	438	441	449	461	468
N.B.	..	..	247	257	252	256	260	264	266	270
Que.	..	..	3,707	3,779	3,816	3,886	3,922	3,981	3,994	4,022
Ont.	..	..	6,323	6,361	6,552	6,662	6,911	7,095	7,351	7,543
Man.	..	..	543	526	544	538	553	559	567	565
Sask.	..	..	343	351	345	351	349	348	357	348
Alta.	..	..	1,476	1,506	1,549	1,560	1,588	1,640	1,696	1,732
B.C.	..	..	2,276	2,354	2,479	2,524	2,586	2,659	2,663	2,721
Y.T.[7]	..	..	9	8	13	15	16	18	31 [5]	27 [6]
N.W.T.[8]	..	..	42	46	50	60	67	77	81 [9]	48 [9]
Canada	..	..	15,589	15,807	16,231	16,490	16,908	17,314	17,691	17,961

Source: HPDB/CIHI

Notes

* This data table includes registered data (membership with a specific data provider is required as a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized cells* in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

The CIHI term active registered dentists represents licensed general practice and certified specialist dentists as reported by the Canadian Dental Association.

.. Information not available.

1. Data previously provided by the CDA, particularly the General Practitioner number, appeared high. Follow up with the CDA resulted in the CDA requesting that CIHI report 1993 and 1994 data as not available.
2. Data as of July 31, 1995.
3. Data as of September 30, 1996.
4. Data as of September 30, 1998.
5. Data as of February 18, 2002.
6. Data as of November 14, 2002.
7. Data provided by the Yukon as of March 31.
8. Data provided by Northwest Territories as of March 31.
9. On April 1, 2001 Nunavut began it's own registration. Some dentists registered with the Northwest Territories in 2001, but most registered with Nunavut in 2002.

Table Dent-2. Number of Active Registered Dentists* per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	..	..	25.5	25.7	27.3	27.1	29.2	30.6	30.6	29.2
P.E.I.	..	..	35.4	35.2	37.3	38.6	41.3	43.3	43.8	44.2
N.S.	..	..	46.4	45.9	46.0	46.7	46.8	47.6	48.8	49.5
N.B.	..	..	32.8	34.1	33.4	34.0	34.4	35.0	35.2	35.7
Que.	..	..	51.1	51.8	52.2	53.0	53.2	53.8	53.7	53.9
Ont.	..	..	57.3	57.0	57.9	58.2	59.6	60.2	61.4	62.3
Man.	..	..	48.0	46.3	47.9	47.2	48.3	48.7	49.4	49.1
Sask.	..	..	33.8	34.4	33.7	34.2	34.1	34.1	35.2	34.5
Alta.	..	..	53.5	53.7	54.0	53.2	53.3	54.1	55.0	55.4
B.C.	..	..	59.4	60.0	62.2	62.9	63.9	65.2	64.6	65.5
Y.T.	..	..	28.6	24.9	40.7	48.3	52.1	59.5	103.0	90.6
N.W.T.	..	..	101.0	110.4	120.7	146.6	163.5	187.7	196.7	115.9
Canada	..	..	52.9	53.1	53.9	54.4	55.3	56.0	56.7	57.1

Source: HPDB/CIHI

Notes

* The CIHI term active registered dentists represents licensed dentists as reported by the Canadian Dental Association.

.. Information not available.

Table Dent-3. Total Number of Certified Dental Specialists by Province/Territory, Canada, 1993–2002[1]

	1993	1994	1995 [2]	1996 [3]	1997	1998 [3]	1999	2000	2001	2002
N.L.	10	10	13	12	11	11	12	13	11	12
P.E.I.	5	5	5	5	5	6	6	5	5	5
N.S.	69	65	63	64	65	66	70	71	72	72
N.B.	23	22	23	23	24	28	28	24	25	25
Que.	359	355	364	379	377	377	379	372	371	368
Ont.	792	799	824	835	859	873	882	886	884	887
Man.	68	65	67	69	74	73	74	76	87	86
Sask.	39	36	33	41	41	43	36	34	38	35
Alta.	156	155	165	164	164	163	161	162	168	163
B.C.	204	203	218	233	263	247	240	243	242	238
Y.T.	..	..	..	..	1	1	..	1	4	4
N.W.T.	..	..	..	..	..	..	2	..	0	0
Nun.	..	..	..	..	..	..	..	..	..	..
Canada	1,725	1,715	1,775	1,825	1,884	1,888	1,890	1,887	1,907	1,895

Source: HPDB/CIHI

Notes
1. Table Dent-3 represents summation of detailed dental specialties found in Tables Dent-4 to 10.
2. Data as of July 31.
3. Data as of September 30.

Table Dent-4. Number of Specialists Certified in Endodontics by Province/Territory, Canada, 1993–2002

	1993	1994	1995 [1]	1996 [2]	1997	1998 [2]	1999	2000	2001	2002
N.L.	..	..	2	2	2	2	2	2	1	1
P.E.I.	..	..	..	..	..	..	..	..	0	0
N.S.	6	5	5	5	6	6	7	6	6	7
N.B.	1	1	1	2	2	3	3	3	3	3
Que.	21	21	22	23	19	19	20	20	20	20
Ont.	70	70	72	74	82	84	86	88	88	89
Man.	6	6	6	6	7	7	7	7	7	8
Sask.	1	1	1	2	2	3	2	2	2	3
Alta.	18	17	20	18	19	17	18	18	19	17
B.C.	19	19	20	23	29	28	27	27	26	26
Y.T.	..	..	..	..	..	..	..	..	..	..
N.W.T.	..	..	..	..	..	..	..	..	..	..
Nun.	..	..	..	..	..	..	..	..	..	..
Canada	142	140	149	155	168	169	172	173	172	174

Source: HPDB/CIHI

Notes
.. Information not available.
1. Data as of July 31.
2. Data as of September 30.

Table Dent-5. Number of Specialists Certified in Oral and Maxillofacial Surgery by Province/Territory, Canada, 1993–2002

	1993	1994	1995 [1]	1996 [2]	1997	1998 [2]	1999	2000	2001	2002
N.L.	2	2	2	3	2	2	3	3	3	3
P.E.I.	1	1	1	1	1	2	2	1	1	1
N.S.	12	13	12	12	14	12	15	16	17	17
N.B.	3	3	3	5	5	5	4	3	3	3
Que.	66	65	67	73	73	73	70	67	68	68
Ont.	146	147	151	152	156	156	157	160	164	164
Man.	12	10	11	11	15	13	11	10	14	14
Sask.	7	7	7	8	8	9	9	8	6	5
Alta.	21	21	21	22	21	22	20	21	21	19
B.C.	27	27	28	32	37	35	35	35	35	35
Y.T.	..	..	..	..	..	..	..	..	1	1
N.W.T.	..	..	..	..	..	..	..	..	..	..
Nun.	..	..	..	..	..	..	..	..	..	..
Canada	**297**	**296**	**303**	**319**	**332**	**329**	**326**	**324**	**333**	**330**

Source: HPDB/CIHI

Notes
.. Information not available.
1. Data as of July 31.
2. Data as of September 30.

Table Dent-6. Number of Specialists Certified in Orthodontics by Province/Territory, Canada, 1993–2002

	1993	1994	1995 [1]	1996 [2]	1997	1998 [2]	1999	2000	2001	2002
N.L.	4	4	4	4	4	4	4	4	4	4
P.E.I.	2	2	2	2	2	2	2	2	2	2
N.S.	18	18	15	16	15	15	16	16	15	15
N.B.	12	12	12	11	12	13	13	12	12	12
Que.	109	107	114	122	121	121	123	122	122	120
Ont.	240	241	245	251	272	283	283	282	282	282
Man.	21	20	20	20	20	22	22	22	26	25
Sask.	12	11	9	11	11	13	10	10	10	10
Alta.	51	51	58	58	56	53	55	57	61	58
B.C.	79	78	84	89	98	93	95	94	96	91
Y.T.	..	..	..	..	..	..	..	1	1	1
N.W.T.	..	..	..	..	..	..	..	..	..	..
Nun.	..	..	..	..	..	..	..	..	..	..
Canada	**548**	**544**	**563**	**584**	**611**	**619**	**623**	**622**	**631**	**620**

Source: HPDB/CIHI

Notes
1. Data as of July 31.
2. Data as of September 30.

Table Dent-7. Number of Specialists Certified in Paediatric Dentistry by Province/Territory, Canada, 1993–2002

	1993	1994	1995 [1]	1996 [2]	1997	1998 [2]	1999	2000	2001	2002
N.L.	1	1	1	1	1	1	1	1	1	1
P.E.I.	1	1	1	1	1	1	1	1	1	1
N.S.	6	5	6	8	6	6	5	5	6	5
N.B.	1	1	2	1	1	1	1	1	1	1
Que.	43	44	43	43	45	44	44	41	40	40
Ont.	85	83	83	85	91	91	91	91	89	90
Man.	9	9	7	6	7	6	7	7	8	8
Sask.	2	2	3	2	2	2	2	2	4	2
Alta.	15	14	14	14	15	17	18	19	18	20
B.C.	18	18	19	19	20	19	18	19	19	19
Y.T.	..	..	..	..	..	..	..	..	1	0
N.W.T.	..	..	..	..	..	..	..	..	1	0
Nun.	..	..	..	..	..	..	..	..	..	..
Canada	**181**	**178**	**179**	**180**	**189**	**188**	**188**	**187**	**188**	**187**

Source: HPDB/CIHI

Notes
.. Information not available.
1. Data as of July 31.
2. Data as of September 30.

Table Dent-8. Number of Specialists Certified in Periodontics by Province/Territory, Canada, 1993–2002

	1993	1994	1995 [1]	1996 [2]	1997	1998 [2]	1999	2000	2001	2002
N.L.	1	1	2	1	1	1	1	1	0	1
P.E.I.	..	..	..	..	..	..	..	..	..	..
N.S.	15	13	13	10	12	12	10	11	12	12
N.B.	4	4	4	4	4	5	5	3	3	3
Que.	44	43	44	45	46	46	47	47	46	45
Ont.	126	128	140	144	143	145	148	148	149	151
Man.	8	8	9	12	12	11	13	12	15	14
Sask.	6	6	5	7	7	7	7	7	8	8
Alta.	21	22	23	23	26	27	27	24	26	26
B.C.	26	26	33	34	37	33	31	33	33	33
Y.T.	..	..	..	..	..	..	..	..	..	..
N.W.T.	..	..	..	..	..	..	..	..	..	..
Nun.	..	..	..	..	..	..	..	..	..	..
Canada	**251**	**251**	**273**	**280**	**288**	**287**	**289**	**286**	**292**	**293**

Source: HPDB/CIHI

Notes
.. Information not available.
1. Data as of July 31.
2. Data as of September 30.

Table Dent-9. Number of Specialists Certified in Prosthodontics by Province/Territory, Canada, 1993–2002

	1993	1994	1995 [1]	1996 [2]	1997	1998 [2]	1999	2000	2001	2002
N.L.	..	..	..	..	..	..	..	..	..	..
P.E.I.	..	..	..	..	..	..	..	..	..	..
N.S.	10	9	10	11	11	13	15	15	14	14
N.B.	..	..	..	..	..	..	1	1	2	2
Que.	50	50	48	49	47	48	48	47	46	46
Ont.	55	58	58	55	56	56	58	57	55	55
Man.	6	6	7	7	6	6	6	7	5	5
Sask.	5	4	3	4	5	4	3	3	4	3
Alta.	21	20	20	20	19	19	17	17	17	17
B.C.	29	30	28	30	34	32	28	29	28	27
Y.T.	..	..	..	..	1	1	0	0	0	0
N.W.T.	..	..	..	..	..	..	1	0	0	0
Nun.	..	..	..	..	..	..	..	..	..	..
Canada	**176**	**177**	**174**	**176**	**179**	**179**	**177**	**176**	**171**	**169**

Source: HPDB/CIHI

Notes
.. Information not available.
1. Data as of July 31.
2. Data as of September 30.

Table Dent-10. Number of Certified Dental Specialists in Dental Public Health, Oral Pathology, and Oral Radiology, Canada, 1993–2002

Specialty	1993	1994	1995 [1]	1996 [2]	1997	1998 [2]	1999	2000	2001	2002
Dental Public Health	64	66	69	68	66	66	64	66	67	68
Oral Pathology	44	42	44	41	33	35	36	37	38	38
Oral Radiology	22	21	21	22	17	16	15	16	15	16
Canada	**130**	**129**	**134**	**131**	**116**	**117**	**115**	**119**	**120**	**122**

Source: HPDB/CIHI

Notes
.. Information not available.
1. Data as of July 31.
2. Data as of September 30.

Table Dent-11. Total Number of Dental Graduates by School of Graduation, Canada, 1993–2002

School	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.S.										
Dalhousie University	37	37	40	39	38	35	31	42	51	43
Que.										
McGill University	37	35	34	28	31	24	26	24	36	36
Université de Montréal	91	110	108	103	92	84	81	87	132	94
Université Laval	62	44	67	53	51	52	45	43	67	53
Ont.										
University of Toronto	83	99	95	94	77	65	78	79	117	95
University of Western Ontario	55	56	64	59	61	53	55	57	65	73
Man.										
University of Manitoba	23	29	30	30	25	22	23	26	30	29
Sask.										
University of Saskatchewan	19	22	26	21	20	20	22	22	32	20
Alta.										
University of Alberta	53	50	38	34	35	37	31	33	48	38
B.C.										
University of British Columbia	41	44	52	53	47	40	43	46	58	49
Canada	**501**	**526**	**554**	**514**	**477**	**432**	**435**	**459**	**636**	**530**

Source: HPDB/CIHI

Endnotes

Sources

Figure Dent-1.	Calculated from data in Table Dent-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).
Figure Dent-2.	Calculated from data in Table Dent-2.
Table Dent-1.	The Canadian Dental Association.
Table Dent-2.	Data calculated based on Table Dent-1 and population estimates from Statistics Canada shown in Appendix C.
Tables Dent-3 to 10.	The Canadian Dental Association (lists specialties).
Table Dent-11.	The Canadian Dental Association, from the individual universities.

Dietitians

Definition

Dietitians plan, implement and manage nutrition and food service programs in a variety of settings. Programs are directed at encouraging healthy nutrition outcomes and the prevention of nutritional disorders; providing treatment of nutrition related diseases and conditions; and ensuring high quality food service operations.

Responsibilities/Activities

Dietitians' responsibilities typically include: assessing nutritional status, developing nutrition care plans, monitoring nutrition interventions, and counseling clients; assessing the nutritional needs of population groups by consulting with health professionals, community groups, and government in planning, conducting, and evaluating nutrition education programs and developing educational materials related to nutrition; and administering, directing and supervising nutrition and food service programs.

Practice Setting

Dietitians are employed in a wide range of settings including educational institutions, hospitals, long term care facilities, public and community health services, private practice, government and industry.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) and regulatory/licensing authorities (membership is a condition of employment) across Canada as the primary source of dietitian data.

Secondary Data Source: Both Census and Labour Force Survey estimates are based on the 1991 Standard Occupational Classification D032 Dietitians and Nutritionists.

Regulatory Environment

- As of 2002, all provinces had legislation that makes registration with a provincial licensing authority a condition of employment as a dietitian.

	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1965	1994	1998	1988	1974	1994	1982	1958	2000	2002	..	..	..

.. Information not available.

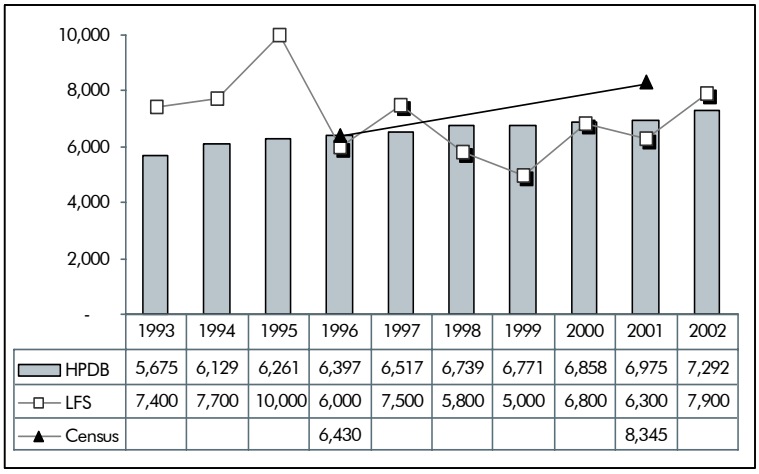
Supply Trends

M

- Figure Diet-1 illustrates that during the common comparable years of 1996 and 2001, HPDB counts of registered dietitians increased 9.0%, the Census estimates of employed dietitians in the workplace in Canada increased 29.8% and the Labour Force Survey (LFS) estimates increased 5.0%.
- Census estimates of employed dietitians in the workplace in Canada were higher than HPDB counts in both common comparable years: <1% higher in 1996 and 19.6% higher in 2001. Conversely, LFS estimates for the same years are lower than HPDB counts: 6.2% lower in 1996 and 9.7% lower in 2001 (coefficients of variation indicate that LFS estimates are reliable from 1996 to 2002—see Appendix D). LFS estimates did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002.

- As shown in Figure Diet-1, the number of registered dietitians, as indicated by the HPDB, has increased steadily from 1993 to 2002. This represents a 28.5% increase in the number of registered dietitians over this ten-year period.
- Table Diet-1 (see dietitian Data Tables) shows the distribution of dietitians by province and territory from 1993 to 2002. Provincially, the largest percentage increase in the number of dietitians over this ten-year period occurred in Ontario (56.8%), however, a portion of this increase may reflect the introduction of regulation in 1994.

Figure Diet-1. Number of Dietitians from Selected Data Sources, Canada, 1993–2002



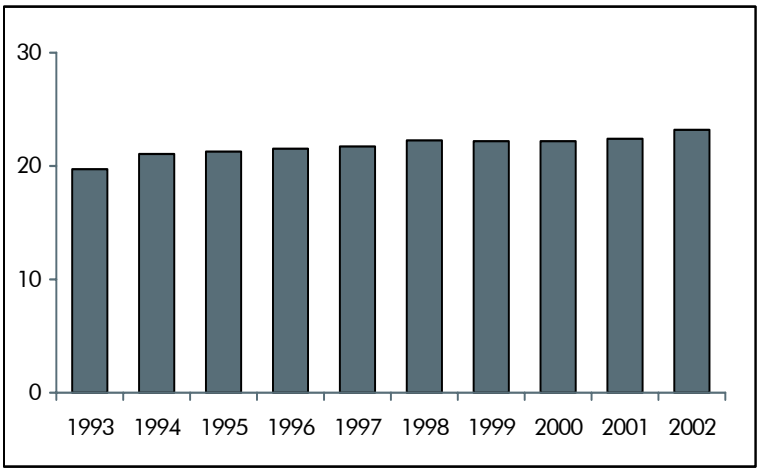
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	5,675	6,129	6,261	6,397	6,517	6,739	6,771	6,858	6,975	7,292
LFS	7,400	7,700	10,000	6,000	7,500	5,800	5,000	6,800	6,300	7,900
Census				6,430					8,345	

Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

Growth in Supply Relative to Population

- The rate of increase of dietitians, as reported in HPDB, has been greater than the population growth rate, resulting in a higher number of dietitians per 100,000 population across Canada. The number of dietitians per 100,000 population in Canada increased 28.1% from 19.7 in 1993 to 23.2 in 2002 (see Figure Diet-2). Over this same time period the Canadian population increased by 9.1%.
- Provincially, in 2002 the number of dietitians per 100,000 population ranged from a low of 19.1 in Ontario to a high of 42.0 in Prince Edward Island (see Table Diet-2).

Figure Diet-2. Number of Registered Dietitians* per 100,000 Population, Canada, 1993–2002



Sources: HPDB/CIHI; Statistics Canada (Population Estimates)

* This data includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

Accessing Personnel**

- Typically clients require a referral from a physician to access a dietitian.

Factors That May Influence Demand for Personnel**

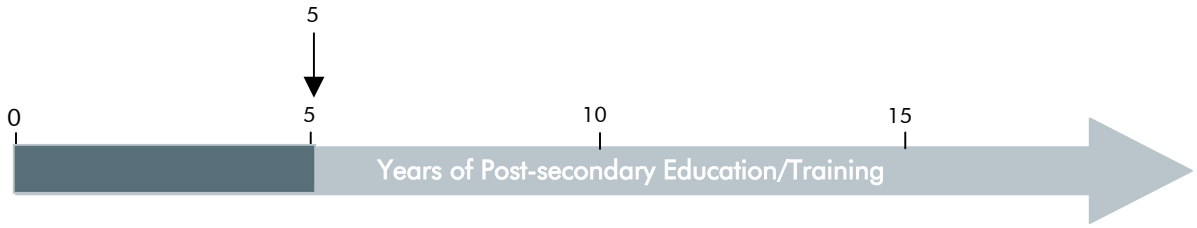
- Increased interest in nutrition and its role in health/wellness initiatives.
- Increased emphasis on prevention of nutrition-related diseases and disorders and funding of programs to enhance health.
- Provincial health legislative changes that mandate required service levels for dietitians.
- Addressing needs of the aging population with emphasis on prevention/treatment of chronic diseases and services provided to well elderly.
- Increased prevalence of nutrition related conditions and incidence of chronic disease in certain populations that are prevented/treated by nutritional means (e.g. low birth weight babies and Diabetes in the Aboriginal population).
- The need for consumer education related to the impact of nutrition related legislation such as nutrition labeling.

What Else Do We Know?

- The average age of dietitians increased from 35 to 40 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- In 2001, the majority (93%) of dietitians were female (Source: Census Data, Statistics Canada).
- The number of graduates of dietitics programs is presented in Table Diet-3.

** Please note that this information in this section is adapted from a survey completed by the staff at the Dietitians of Canada (see Appendix B for the survey tool).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
5 years + internship	Undergraduate degree in Foods and Nutrition plus a practicum training program/dietetic internship of approximately 40 weeks which is integrated within the undergraduate program, or completed as a post-degree program, or as a Master's practicum.

Changes to Education and/or Training Requirements

- There are currently no expected changes to education and/or training requirements in the provinces/territories in which dietitians are regulated or at the national level.

Possible Areas of Certified Specialization

- Not applicable.

What's Happening?

Listed are references to key research documents relating to dietitians that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *Survey of New Graduates of Dietetic Internship/Practicum Training Programs—studies of 1997, 1998 and 2001 graduates*. Available from Dietitians of Canada (www.dietitians.ca).

** Please note that this information in this section is adapted from a survey completed by the staff at the Dietitians of Canada (see Appendix B for the survey tool).

Data Tables

Table Diet-1. Number of Registered Dietitians* by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.[1]	105	101	99	101	102	115	118 [14]	123	123	125
P.E.I.[2]	*45* [9]	*45* [9]	47	47	46	49	50	50	54	59
N.S.[11]	*305*	*310*	*322*	*318*	*316*	380	380	360	365	390
N.B.[3]	*210* [9]	*210* [9]	*210* [9]	211	217	249	259	262	276	278
Que.[4]	1,858	1,896	1,924	1,892	1,893	1,848	1,856	1,901	1,916	1,968
Ont.[5]	*1,477* [10]	1,858	1,929	2,047	2,145	2,142	2,153	2,202	2,256	2,316
Man.[6]	258	261	263	269	275	282	268	265	289	300
Sask.[7]	165	176	182	179	191	206	206	222	224	229
Alta.[1]	*495*	*498*	*468*	*498*	*520*	*656*	*635*	*619*	625	713
B.C.[8]	757	774	817	835	812	812	846	845 [12]	847	900
Y.T. & N.W.T.	..	..	..	..	..	..	..	*9* [13]	..	*14* [13]
Canada	***5,675***	***6,129***	***6,261***	***6,397***	***6,517***	***6,739***	***6,771***	***6,858***	***6,975***	***7,292***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized cells* in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

.. Information not available.

1. Data as of March 31.
2. Prince Edward Island began registering dietitians April 1, 1995.
3. New Brunswick 1998 data as of September 30; 1999 as of June 9; 2000 as of September 9; 2001 as of July 15; 2002 as of November 15.
4. Quebec data as of March 31 the following year; number includes all retired members, associate members, practising and not-practising members.
5. 1993 to 2001 figures for Ontario are based on the Ontario College of Dietitians fiscal year end of March 31. 2002 data as of July 5.
6. Data as of April 1.
7. Saskatchewan data 1998–2000 as of March 31.
8. British Columbia uses the title "registered dietitian/nutritionist" while other provinces use the title "registered dietitian." Data provided as of April 1.
9. Estimate.
10. 1993 reflects a transitional period in the regulatory environment for dietitians in Ontario, from voluntary membership to licensure with the College of Dietitians of Ontario as a condition of employment in 1994. The College of Dietitians of Ontario began registering dietitians on January 1, 1994.
11. Nova Scotia 1998–1999 data as of December 24, 1999; 2000 data as of May 6, 2001; 2001 data as of March 31, 2002; 2002 data as of February 11, 2003.
12. There are no regulatory colleges in the territories. Therefore, dietitians are not registered in the territories; as a result, 7 of the dietitians working in the Yukon are registered in British Columbia.
13. Figure only includes the dietitians practicing in the Yukon, Northwest Territories and Nunavut who are registered members of Dietitians of Canada.
14. National Exam was not implemented in Newfoundland and Labrador until 1999.

Table Diet-2. Number of Registered Dietitians per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	18.2	17.7	17.5	18.1	18.5	21.2	21.8	22.9	23.1	23.5
P.E.I.	33.8	33.5	34.7	34.4	33.6	35.7	36.2	36.1	38.8	42.0
N.S.	33.0	33.4	34.6	34.1	33.8	40.5	40.3	38.2	38.7	41.3
N.B.	28.0	27.9	27.9	28.0	28.8	33.0	34.3	34.7	36.5	36.7
Que.	25.8	26.2	26.5	26.0	25.9	25.2	25.2	25.7	25.8	26.4
Ont.	13.7	17.1	17.5	18.3	19.0	18.7	18.6	18.7	18.9	19.1
Man.	23.0	23.2	23.3	23.7	24.2	24.8	23.4	23.1	25.2	26.1
Sask.	16.4	17.4	17.9	17.5	18.7	20.1	20.1	21.8	22.1	22.7
Alta.	18.4	18.3	17.0	17.8	18.1	22.4	21.3	20.4	20.3	22.8
B.C.	20.9	20.7	21.3	21.3	20.4	20.2	20.9	20.7	20.6	21.7
Y.T. & N.W.T.	..	..	..	..	..	..	..	29.8	..	47.0
Canada	**19.7**	**21.1**	**21.3**	**21.5**	**21.7**	**22.3**	**22.2**	**22.2**	**22.4**	**23.2**

Source: HPDB/CIHI

Notes
.. Information not available.
See Table Diet-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratio in Table Diet-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Table Diet-3. Number of Graduates of Dietetics Programs[1] by Province/Territory, Canada, 1998–2002

	1998	1999	2000	2001	2002
N.L.	..	4	5	4	4
P.E.I.	..	4	4	5	4
N.S.	..	26	27	29	28
N.B.	..	14	14	15	16
Que.	..	125	135	103	113
Ont.	..	58	59	65	75
Man.	..	15	16	14	17
Sask.	..	17	18	18	23
Alta.	..	36	40	40	38
B.C.	..	18	19	24	25
Y.T.	..	..	2	2	2
N.W.T.	..	..	..	..	..
Canada	**330** [2]	**317**	**339**	**319**	**345**

Source: HPDB/CIHI

Notes
.. Information not available.
1. Figures include post-degree interns, university integrated programs and Masters practicum programs. Graduates of Masters level programs that do not include a practicum component are not included.
2. Provincial breakdown unavailable.

Endnotes

Sources

Figure Diet-1. Calculated from data in Table Diet-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure Diet-2. Calculated from data in Table Diet-2.

Table Diet-1. Provincial Dietitians Associations (Prince Edward Island Dietitians Registration Board, Newfoundland Dietetic Association, Nova Scotia Dietetic Association, New Brunswick Association of Dietitians, Ordre professionnel des diététistes du Québec, College of Dietitians of Ontario, Manitoba Association of Registered Dietitians, Saskatchewan Dietetic Association, College of Dietitians of Alberta, British Columbia Dietitians' and Nutritionists' Association).

Table Diet-2. Data calculated based on Table Diet-1 and population estimates from Statistics Canada shown in Appendix C.

Table Diet-3. Dietitians of Canada

Health Record Professionals

Definition

Health record professionals are trained and certified in health information management and include health record administrators, health record technicians, and health record practitioners.

Responsibilities/Activities

Health record professionals are responsible for planning, directing and controlling the departments responsible for records management. Their duties can include: directing and advising staff engaged in providing records management; planning, administering and controlling budgets for contracts, equipment and supplies; preparing reports; interviewing, hiring and training staff; classifying, coding, cross-referencing and storing health records and related information; maintaining indexes for classification systems; operating information retrieval systems and responding to requests for health record information; preparing medical, social and administrative statistics; and applying knowledge of medical terminology, physiology and treatments.

Practice Setting

They are employed in a wide range of settings including hospitals, government agencies, educational institutions, community/health clinics, law offices, insurance companies, pharmaceutical companies, primary care agencies, and nursing homes and long term care facilities.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from the Canadian College of Health Record Administration/ Canadian Health Record Association (CCHRA/CHRA), where membership is voluntary across Canada, as the primary source of health record professional data.

Secondary Data Source: The 1991 Standard Occupational Classification (SOC 1991) does not adequately differentiate health record professionals and therefore, Labour Force Survey and Census estimates were not generated. The SOC 1991 classifications A114 Other Administrative Services Managers + B513 Records and File Clerks, was determined to be too broadly based to provide a reasonable comparison to HPDB data.

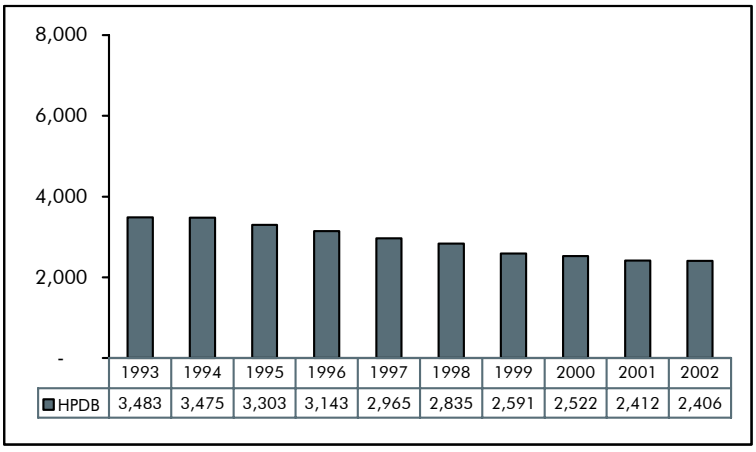
Regulatory Environment

- There are no regulatory requirements for health record professionals at this time as membership with the Canadian College of Health Record Administration/Canadian Health Record Association (CCHRA/CHRA) is voluntary in all provinces. However, some employers may require Certification with the CHRA as a condition of employment.

Supply Trends

- For health record administrators (HRAs) and health information service (HIS) professionals, membership in the College results in a "Certificant" designation, while for health record technicians (HRTs), membership results in an "Associate" designation. For further information on membership designation, please contact the Canadian College of Health Record Administration/Canadian Health Record Association (CCHRA/CHRA) at www.chra.ca.
- As shown in Figure HRP-1, membership for health record professionals with the CCHRA has been decreasing steadily from 1993 to 2002. This represents a 31.0% decrease in the number of health record professionals over this ten-year period.
- Table HRP-1 shows the distribution of health record professionals by province from 1993 to 2002. All provinces experienced a decrease in the number of health record professionals, however, the territories showed a slight increase (14.3%).

Figure HRP-1. Number of Health Record Professionals, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	3,483	3,475	3,303	3,143	2,965	2,835	2,591	2,522	2,412	2,406

Source: HPDB/CIHI

- Tables HRP-2 and HRP-4 illustrate the number of HRA and HIS graduates who became Certificants in the CCHRA. Table HRP-3 illustrates the number of HRT graduates who became Associates in the CCHRA. It should be noted that the numbers who go on to become Certificants or Associates are not necessarily equivalent to the annual number of graduates from each of the educational institutions. Graduates of HRA, HRT and HIS are not required to write the national exam in order to work in the field; however, some employers may require it as a condition for employment. Due to the program change, by 2001 there were program closures at the college-level. These closures may have impacted the size of the graduating pool attempting to achieve Certificant or Associate status in recent years.

Growth in Supply Relative to Population

- Due to the voluntary nature of the data collected, personnel per population ratios were not generated.

Accessing Personnel

- There is no information available at this time.

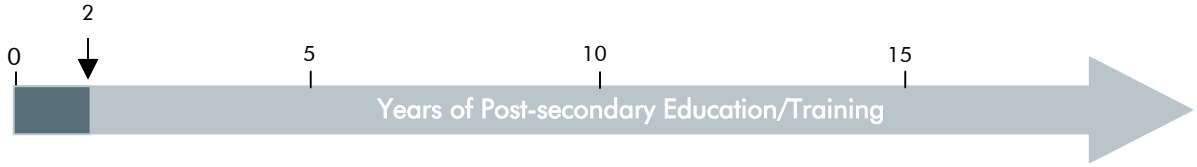
Factors That May Influence Demand for Personnel

- There is no information available at this time.

What Else Do We Know?

- There is no information available at this time.

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
2	College certificate

Changes to Education and/or Training Requirements

- Currently there are no expected changes.

Possible Areas of Certified Specialization

- There is no information available at this time.

What's Happening?

Listed are references to key research documents relating to health record professionals that are recommended reading for health human resource planners.

Research Reports

- There is no information available at this time.

Research in Progress

- There is no information available at this time.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Data Tables

Table HRP-1. Total Number of Certificants and Associates who were Members of the Canadian College of Health Record Administrators/Canadian Health Record Association[1] by Province/Territory, Canada, 1993–2002*

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	50	50	52	56	51	49	42	42	38	34
Health Record Administrators	15	15	17	16	16	15	15	15	16	14
Health Record Technicians	35	35	35	40	35	34	27	27	20	18
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	2	2
P.E.I.	19	19	21	20	15	13	16	17	15	15
Health Record Administrators	7	9	9	9	7	6	7	6	6	6
Health Record Technicians	12	10	12	11	8	7	9	11	9	9
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	0	0
N.S.	216	212	202	198	184	180	173	167	155	149
Health Record Administrators	93	96	95	93	90	91	90	86	75	68
Health Record Technicians	123	116	107	105	94	89	83	81	77	76
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	3	5
N.B.	119	109	111	111	99	99	99	103	94	99
Health Record Administrators	45	38	42	40	35	36	38	43	36	37
Health Record Technicians	74	71	69	71	64	63	61	60	56	57
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	2	5
Que.	100	104	99	105	57	37	28	26	22	18
Health Record Administrators	88	93	91	98	49	31	24	23	19	16
Health Record Technicians	12	11	8	7	8	6	4	3	3	2
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	0	0
Ont.	1,445	1,415	1,404	1,324	1,267	1,153	1,131	1,086	1,094	1,124
Health Record Administrators	512	509	507	485	472	429	426	410	400	387
Health Record Technicians	933	906	897	839	795	724	705	676	660	640
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	34	97
Man.	170	160	165	154	129	120	110	116	87	99
Health Record Administrators	36	37	33	31	28	24	24	23	21	21
Health Record Technicians	134	123	132	123	101	96	86	93	65	64
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	1	14
Sask.	269	270	267	262	262	265	259	259	224	214
Health Record Administrators	124	128	131	131	133	137	131	131	112	100
Health Record Technicians	145	142	136	131	129	128	128	128	106	97
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	6	17
Alta.	595	642	503	461	442	484	324	308	307	289
Health Record Administrators	255	341	220	208	198	186	148	140	130	119
Health Record Technicians	340	301	283	253	244	298	176	168	169	149
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	8	21
B.C.	480	472	455	431	434	413	388	376	351	342
Health Record Administrators	285	285	276	270	281	267	245	233	212	194
Health Record Technicians	195	187	179	161	153	146	143	143	126	107
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	13	41
Y.T. & N.W.T.	20	22	24	21	25	22	21	22	25	23
Health Record Administrators	8	9	11	10	10	11	10	9	9	7
Health Record Technicians	12	13	13	11	15	11	11	13	14	12
Health Record Practitioners[2]	..	..	..	..	..	..	..	..	2	4
Canada	3,483	3,475	3,303	3,143	2,965	2,835	2,591	2,522	2,412	2,406
Health Record Administrators	**1,468**	**1,560**	**1,432**	**1,391**	**1,319**	**1,233**	**1,158**	**1,119**	**1,036**	**969**
Health Record Technicians	**2,015**	**1,915**	**1,871**	**1,752**	**1,646**	**1,602**	**1,433**	**1,403**	**1,305**	**1,231**
Health Record Practitioners[2]	**..**	**..**	**..**	**..**	**..**	**..**	**..**	**..**	**71**	**206**

Source: HPDB/CIHI

Notes

* This data table includes voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized cells* in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

.. Information not available.

1. Membership to the CCHRA/CHRA is voluntary across all provinces/territories.
2. As of 2001, Health Record Administrators and Technicians have been combined; the new title is Health Record Practitioner.

Table HRP-2. Number of Health Record Administrator Graduates who became Certificants[1], by School of Graduation, Canada, 1993–2000

School	1993	1994	1995	1996	1997	1998	1999	2000
N.S.								
School of Health Record Science [2]	6	5	8	5	9	3	1	0
Que.								
College Ahuntsic	34	30	29	34	41	32	24	34
College LaFleche	22	28	27	23	27 [5]	39	23	14
College de l'Assomption	..	..	0	6	1	0	0	..
Ont.								
Algonquin CAAT	8	13	22	13	13	1	0 [4]	0
George Brown CAAT	8	20	10	16	21	7	16	8
Sask.								
SIAST	8	8	11	8	8	10	7	7
Alta.								
N.A.I.T.	16	17	13	1	0	0 [4]	0	0
B.C.								
Douglas College	17	8	8	14	12	12	1	1
Progression Associate to Certificant [3]	1	..	..	..	..	..	..	..
Canada	120	129	128	120	132	104	72	64

Source: HPDB/CIHI

Notes
.. Information not available.
1. Includes only those graduates who applied to the CCHRA/CHRA during the year of graduation and who were accepted as Certificants. It is not necessarily equivalent to the annual number of graduates of each institute.
2. Name later changed to Queen Elizabeth II Health Sciences Centre.
3. Program of self-study, followed by a Certificant-level examination.
4. Discontinued program.
5. CIHI Estimate.

Table HRP-3. Number of Health Record Technician Graduates who became Associates[1], by School of Graduation, Canada, 1993–2000

School	1993	1994	1995	1996	1997	1998	1999	2000
N.S.								
School of Health Record Science[2]	3	3	4	1	0	1	0 [3]	0
Ont.								
Algonquin CAAT, Ottawa	5	4	3	1	3	0 [3]	0	0
Niagara CAAT, Welland	15	9	14	7	0	0	1	0
Fanshawe CAAT, London	9	8	6	5	8	0 [3]	0	0
George Brown CAAT, Toronto	17	28	22	35	12	1	0	0 [3]
Confederation College	8	7	7	6	12	2	2	0
Man.								
Red River Community College	17	12	10	10	0	13	0	16
Sask.								
SIAST	2	4	1	4	0	0	8	0
Alta.								
S.A.I.T.	18	19	14	18	12	9	6	13
N.A.I.T.	0	0	0	3	0 [3]	0	0	0
B.C.								
Douglas College	8	9	4	2	0 [3]	0	0	0
Canadian Healthcare Association	**107**	**12**	**53**	**39**	**46**	**41**	**42**	**64**
Canada	**209**	**115**	**138**	**131**	**90**	**67**	**59**	**93**

Source: HPDB/CIHI

Notes
1. Includes only those graduates who applied to the CCHRA/CHRA during the year of graduation and who were accepted as Associates. It is not necessarily equivalent to the annual number of graduates of each institute.
2. Name later changed to Queen Elizabeth II Health Sciences Centre.
3. Discontinued program.

Table HRP-4. Number of Health Information Services[1] Graduates who became Certificants[2], by School of Graduation, Canada, 2001–2002

	2001	2002
B.C.		
Douglas College	2	24
Ont.		
George Brown College	22	19
Man.		
Red River Community College	0 [3]	13
Sask.		
SIAST-Wascana Campus	6	10
Canadian Healthcare Association	**57**	**124**
Canada	**87**	**190**

Source: HPDB/CIHI

Notes
1. The school programs name has changed to Health Information Services.
2. Includes only those graduates who applied to the CCHRA/CHRA during the year of graduation and who were accepted as Certificants. It is not necessarily equivalent to the annual number of graduates of each institute.
3. There are no graduates in 2001 as students are only taken in every two years; and the most recent year of graduates is 2002.

Endnotes

Sources

Figure HRP-1. Calculated from data in Table HRP-1.

Figure HRP-2. Calculated from data in Table HRP-2.

Table HRP-1. Canadian College of Health Record Administrators (CCHRA)

Table HRP-2. CCHRA

Table HRP-3. CCHRA

Table HRP-4. Individual colleges and universities, Canadian Healthcare Association

Health Service Executives

Definition

A health service executive assumes a leadership role in a management position in the Canadian health system.

Responsibilities/Activities

The health service executive leads the part of the system for which he/she is responsible to ensure that the service within his/her area of responsibility is provided with the highest quality, with best use of available resources, in an environment that is conducive to good employee morale and that it is synchronized with other parts of the health system.

Practice Setting

A health service executive may work in an organization that provides health care services to Canadians (e.g. hospitals, Regional Health Authorities, local health clinics, etc.). He/she may work in an organization that helps to plan for such services (i.e. Departments of Health, consulting firms, etc.). He/she may work in an organization that develops/influences policy (health and/or financial policy) that affects the Canadian health system (e.g. Departments of Health, health associations, etc.). Finally, he/she may work in an organization that provides products or services to the Canadian health system (e.g. lawyers that practice health law, companies that deliver services within health care organizations on a contract basis, etc.).

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from the Canadian College of Health Service Executives (CCHSE), where membership is voluntary across Canada, as the primary source of health service executive data.

Secondary Data Source: The 1991 Standard Occupational Classification (SOC 1991) does not adequately differentiate Health Service Executives and therefore, Labour Force Survey and Census estimates were not generated. The SOC 1991 classification A014 Senior Managers—Health, Education, Social and Community Services and Membership Organizations, was determined to be to broadly based to provide a reasonable comparison to HPDB data.

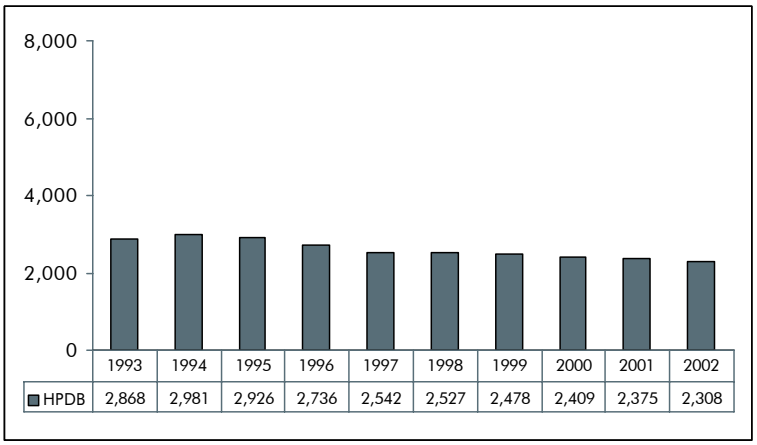
Regulatory Environment

- The CCHSE is an educational and professional association and not a regulatory body. Membership is voluntary and therefore does not necessarily include all health service executives in Canada.

Supply Trends

- As shown in Figure HSE-1, the total number of health service executives decreased by 19.5% from 2,868 in 1993 to 2,308 in 2002.
- Table HSE-1 shows the distribution of health service executives by province from 1993 to 2002. Membership to the College peaked in 1994 and by 2002 membership experienced a ten-year low.
- Between 1993 and 2002, all provinces experienced a decrease in the number of health service executives with the largest percentage decrease occurring in Prince Edward Island (73.5%). Only two provinces experienced less of a decrease than the National ratio, Nova Scotia (2.4%) and Ontario (6.0%).
- There is considerable change in the number of members over this ten-year period.

Figure HSE-1. Number of Members[1] of the Canadian College of Health Service Executives (CCHSE), Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	2,868	2,981	2,926	2,736	2,542	2,527	2,478	2,409	2,375	2,308

Source: HPDB/CIHI

[1] The CCHSE is an educational and professional association and not a regulatory body. Membership is voluntary and therefore does not include all health service executives in Canada.

Growth in Supply Relative to Population

- Personnel per population was not generated as the data currently available is entirely voluntary membership data and does not provide sufficient enumeration of health service executives in Canada.

What Else Do We Know?

- No other data is available at this time.

Entering the Profession**

- Attributes of health service administration professionals:
  - Master's degree in Health Services Administration, or equivalent.
  - Ability to promote change and innovation in an environment of finite resources.
  - Ability to promote a culture of quality and compassion.
  - Excellent people and communications skills.
  - Certification or Fellowship in the Canadian College of Health Service Executives.
  - Ideally, previous management experience.

Changes to Education and/or Training Requirements

- There are no expected changes.

** Please note that this information in this section is adapted from a survey completed by the staff at The Canadian College of Health Service Executives (see Appendix B for the survey tool). More information is available from the Canadian College of Health Service Executives (www.cchse.org).

What's Happening?

Listed are references to key research documents relating to health service executives that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *Summary report, (Nov. 2000) Leadership Symposium* (other publications available at www.cchse.org).
2. *Successful Leaders in the Nonprofit Sector*, Ray Berndtson.
3. *Planification et développement de la main-d'œuvre cadre et hors-cadre dans le réseau de la santé et des services sociaux pour la période 2000–2010* (an analysis of Quebec's health and social services management requirements for the period 2000 to 2010), published by « Le Centre de référence des directeurs généraux et des cadres » de la province de Québec, March 2001.

Research in Progress

- No suggestions at this time.

** Please note that this information in this section is adapted from a survey completed by the staff at The Canadian College of Health Service Executives (see Appendix B for the survey tool).

Data Table

Table HSE-1. Number of Members[1] of the Canadian College of Health Service Executives (CCHSE) by Province/Territory of Membership, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	*100* [2]	*95*	*92*	*75*	*63*	*56*	*48*	*43*	*42*	*36*
P.E.I.	*23* [2]	*17*	*17*	*15*	*11*	*9*	*5*	*6*	*7*	*6*
N.S.	*125* [2]	*132*	*128*	*111*	*101*	*96*	*92*	*97*	*116*	*122*
N.B.	*111* [2]	*101*	*95*	*86*	*68*	*67*	*57*	*53*	*52*	*56*
Que.	*139* [2]	*179*	*156*	*134*	*121*	*115*	*128*	*127*	*115*	*110*
Ont.	1,307	*1,439*	*1,473*	*1,429*	*1,324*	*1,333*	*1,294*	*1,295*	*1,265*	*1,228*
Man.	*129* [2]	*122*	*122*	*109*	*106*	*114*	*109*	*100*	*105*	*105*
Sask.	*149* [2]	*133*	*123*	*123*	*108*	*109*	*112*	*102*	*92*	*78*
Alta.	*420* [2]	*358*	*327*	*284*	*283*	*286*	*312*	*259*	*259*	*258*
B.C.	*366* [2]	*375*	*367*	*345*	*334*	*320*	*294*	*298*	*293*	*287*
Y.T.	..	..	..	..	*3*	*2*	*2*	*1*	*1*	*2* [3]
N.W.T.	..	*30*	*26*	*25*	*20*	*20*	*25*	*28*	*28*	*20*
Canada	***2,868***	***2,981***	***2,926***	***2,736***	***2,542***	***2,527***	***2,478***	***2,409***	***2,375***	***2,308***

Source: HPDB/CIHI

Notes

Italics indicate that data in a cell is, in part (e.g. a Canada total) or entirely, voluntary membership data (mandatory registration with the data provider is not a condition of employment) or an estimate (superscript notes included with estimates identify the source of the estimate i.e. CIHI or data provider). See additional notes below.

.. Information not available.

1. Excludes Student Affiliates, Foreign Affiliates, Inactive Members, Fellows, Honorary Members, and Members of Indefinite Status. The CCHSE is an educational and professional association and not a regulatory body. Membership is voluntary and therefore does not necessarily include all health service executives in Canada.
2. CIHI estimate.
3. Yukon 2002 data includes one person from Nunavut.

Endnotes

Sources

Figure HSE-1. Calculated from data in Table HSE-1.

Table HSE-1. Canadian College of Health Service Executives

Licensed Practical Nurses

Definition

Licensed practical nurses (LPNs) are regulated health professionals who work in partnership with other members of the health care team to provide nursing services to individuals, families and groups of all ages.

Responsibilities/Activities

Licensed Practical Nurses combine nursing knowledge, skill and judgment when treating health conditions, promoting health, preventing illness and assisting clients to achieve an optimal state of health. They assess, plan, implement and evaluate care for clients throughout the lifecycle as disease progresses and through palliative stages.

Practice Setting

Licensed practical nurses practice in a variety of settings and contexts, including but not limited to, hospitals, homes for the aged, public health units, community nursing agencies, private practices, clinics, doctor's offices, industry, schools, adult day care centers, private homes, community health centers, child care centers and children's camps.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Visit www.cihi.ca for more information.

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from the provincial/territorial regulatory authorities for the years 1993 to 2001, whereas, 2002 data is provided by the Licensed Practical Nurses Database (LPNDB) at CIHI. Beginning in 2002, licensed practical nursing regulatory authorities submit a core set of agreed upon data elements to CIHI on an annual basis; reported indicators from the LPNDB system are based on standardized data that is comparable across Canada. The introduction of LPNDB data reflects a break in the licensed practical nurses data series reported in HPDB, and readers are cautioned that 2002 data is not directly comparable to previous years (1993 to 2001).

Secondary Data Source: Both Census and Labour Force Survey estimates are based on the 1991 Standard Occupational Classification D233 Registered Nursing Assistants.

Regulatory Environment

- As of 2001, Licensed Practical Nurses are regulated in all provinces and territories in Canada. The term licensed practical nurse is used in all provinces/territories with the exception of Ontario, where licensed practical nurses are also referred to as registered practical nurses.

	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1983	1959	1957	1960	1974	1947	1980	1956	1947	1988	1987	1988	2001

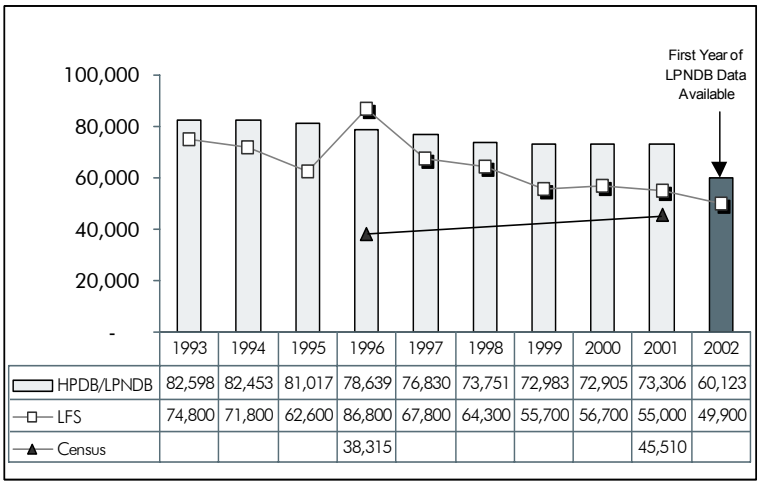
Supply Trends

- Figure LPN-1 illustrates that during the common comparable years of 1996 and 2001, HPDB counts of licensed practical nurses decreased 6.8%, the Census estimates of employed licensed practical nurses in the workplace in Canada increased 18.8%, and the Labour Force Survey (LFS) estimates indicate a 36.6% decrease when comparing these two years.
- Census estimates of employed licensed practical nurses in the workplace in Canada were lower than HPDB counts in both common comparable years: 51.3% lower in 1996 and 37.9% lower in 2001. LFS estimates for the same years are higher than HPDB counts in 1996 and lower than HPDB counts in 2001: 10.4% higher in 1996 and 25.0% lower in 2001(coefficients of variation indicate that LFS estimates are reliable from 1996 to 2002—see Appendix D). LFS estimates overall, did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2001(2002 evaluation not included because of the series break in HPDB data).

M

- In Figure LPN-1, the 2002 data, as indicated by the HPDB, is not directly comparable to the data presented for 1993 to 2001 due to different collection methodologies (see Table LPN-1).
- As a result of a break in the data series in 2002, trend analysis is not available at this time (analysis will focus on 2002 findings from the CIHI report, *Workforce Trends for Licensed Practical Nurses in Canada, 2002*).

Figure LPN-1. Number of Licensed Practical Nurses from Selected Data Sources, Canada, 1993–2002



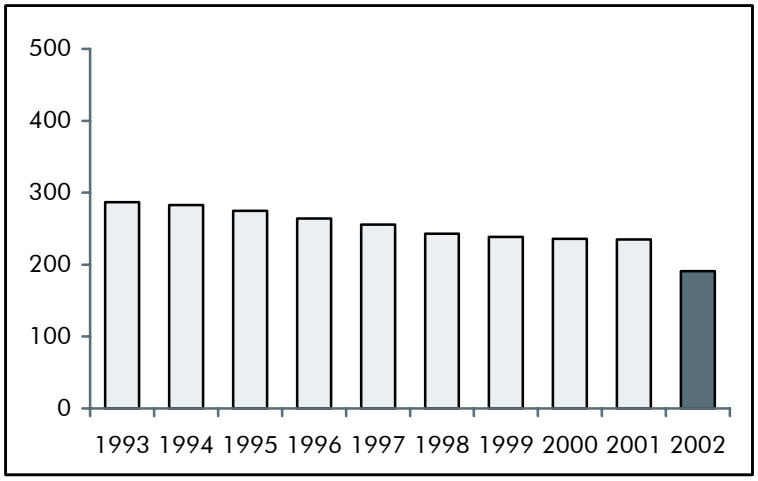
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB/LPNDB	82,598	82,453	81,017	78,639	76,830	73,751	72,983	72,905	73,306	60,123
LFS	74,800	71,800	62,600	86,800	67,800	64,300	55,700	56,700	55,000	49,900
Census				38,315					45,510	

Sources: HPDB/CIHI, LPNDB/CIHI (2002), LFS/Statistics Canada, Census/Statistics Canada

Growth in Supply Relative to Population

- In 2002, there were 191.1 licensed practical nurses per 100,000 population in Canada (see Figure LPN-2).
- The number of LPNs per population ranged from a low of 102.7 per 100,000 in British Columbia to a high of 519.1 per 100,000 in Newfoundland and Labrador. There appears to be a trend from East to West, where higher ratios are found in the East and decline to the West (see Table LPN-2).

Figure LPN-2. Number of Registered Licensed Practical Nurses* per 100,000 Population, Canada, 1993–2002



Sources: HPDB/CIHI, LPNDB/CIHI (2002), LFS/Statistics Canada, Census/Statistics Canada

* Figures from 1993 to 2001 represent total registered/licensed, regardless of activity/ employment status. Data in 2002 represents a data series break and reflects registered, active practicing, employed in licensed practical nursing. CIHI data will differ from provincial data due to the CIHI collection, processing and reporting methodology.

What Else Do We Know?

- The following information is from the CIHI publication, *Workforce Trends of Licensed Practical Nurses in Canada, 2002*. For further details please visit www.cihi.ca. In 2002:
  - 93.2% of LPNs were female and 6.8% were male.
  - The average age of LPNs employed in this profession in Canada was 44.2 years.
  - Of Canada's LPN workforce, 15.1% are 55 years of age or greater.
  - Approximately 42% of LPNs worked full-time, with only 16.6% working on a casual basis.

Entering the Profession

To enter *practice* in Canada LPNs require completion of recognized training (education program) and need to successfully pass the national exam.

Number of Weeks, Months or Years[1]	Education and/or Training Required to Enter Practice in Canada
(52 weeks)	Newfoundland and Labrador —Diploma or Equivalency* *To obtain Equivalency status, you must graduate from an approved practical nursing program and have successful completion of the national exam.
(14 months*) *These 14 months are taken over 16 months.	Prince Edward Island—Diploma or Equivalency* *Prince Edward Island obtained *Equivalency status* with the new legislation (2002). They are currently not set up for Equivalency designation and have never had anyone apply for status.
(52 weeks)	Nova Scotia—Certificate or Equivalency* *To obtain Equivalency status, you must graduate from an approved practical nursing program and have successful completion of the national exam.
(57 weeks)	New Brunswick—Diploma or Equivalency* *To obtain Equivalency status, you must graduate from an approved practical nursing program, have successful completion of the national exam, and be a member of good standing.
2 years	Quebec—Diploma or Equivalency* *To obtain Equivalency status, you must graduate from an approved practical nursing program and have successful completion of the national exam.

Number of Weeks, Months or Years[1]	Education and/or Training Required to Enter Practice in Canada
2 years	Ontario—Certificate or Equivalency* *To obtain Equivalency status, you must graduate from an approved practical nursing program, successfully complete the national exam and have worked as a practical nurse within the past 5 years. In addition to this, some of the other criteria include: English or French fluency scores, registration within the jurisdiction, residency location, Landed Immigrant status or Canadian citizenship, and a good standing moral character.
(15 months, 3 weeks)	Manitoba—Diploma or Equivalency* *To obtain Equivalency status, you must graduate from an approved practical nursing program and have successful completion of the national exam.
(14 months)	Saskatchewan—Certificate or Equivalency* *To obtain Equivalency status, you must graduate from an approved practical nursing program, have successful completion of the national exam, and work a total of 900 hours in the previous five years.
(52 weeks)	Alberta—Certificate or Equivalency* *To obtain Equivalency status, you must graduate from an approved practical nursing program and have successful completion of the national exam.
(12 months)	British Columbia—Certificate or Equivalency* *To obtain Equivalency status, you must graduate from an approved practical nursing program, have successful completion of the national exam or had the equivalent education to the LPN program in British Columbia.
(12 months)	Yukon—Certificate or Equivalency* *To obtain Equivalency status, you must successfully complete a program for Licensed Practical Nurses or passed the Canadian Practical Nurses Registration exam (within 3 years). If more than 3 years, you must show proof of 1000 hours of work in the past 5 years.
(13 months)	Northwest Territories—Diploma or Equivalency* *To obtain Equivalency status, you must graduate from an approved practical nursing program and have successful completion of the national exam. Northwest Territories and provinces have a mutual recognition. If an LPN is licensed within Canada, Northwest Territories approves the LPN to work in Northwest Territories automatically.

Notes
All Equivalency Status definitions apply to Canadian applicants. Those coming from outside of the country must follow a different set of criteria to become an LPN.
[1] The length of education/training for licensed practical nurses is evolving and varies, from jurisdiction to jurisdiction, across Canada.

Changes to Education and/or Training Requirements

- There are some anticipated changes in the education and/or training requirements for LPNs.
  - Newfoundland and Labrador anticipates that their LPN Diploma program will be increased to 13 months in September 2004.
  - Nova Scotia anticipates the length of their LPN certificate program to increase to 55 weeks.
  - Ontario anticipates a change from a Certificate to Diploma in 2005.

Possible Areas of Certified Specialization

- Not applicable.

Accessing Personnel/Factors That May Influence Demand for Personnel

- For further information, please contact the Nursing area at the Canadian Institute for Health Information. E-mail: nursing@cihi.ca or visit www.cihi.ca.

What's Happening?

Listed are references to key research documents relating to licensed practical nurses that are recommended reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *Licensed Practical Nurses: A Practical Solution to the Nursing Shortage*. Prepared for the Standing Senate Committee on Social Affairs, Science and Technology. Canadian Practical Nurses Association. October 2001
2. *Workforce Trends of Licensed Practical Nurses in Canada, 2002,* The Canadian Institute for Health Information, 2003. Ontario, Canada
   E-mail: nursing@cihi.ca

Research in Progress

1. *Building the Future: an integrated strategy for nursing human resources in Canada*. http://www.buildingthefuture.ca Contact: info@buildingthefuture.ca
2. *Health of Nurses Survey*. http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=hhrdata_nursemonitor_e. Contact: nursing@cihi.ca

Data Tables

Table LPN-1. Number of Registered Licensed Practical Nurses[1] by Province/Territory of Licensure, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	Series Break	2002 [2]
N.L.	2,751	2,853	2,833	2,838	2,797	2,809	2,859	2,905	2,889		2,759
P.E.I.	631	634	597	586	631	621	621	634	634		593
N.S.	3,283	3,248	3,244	3,160	3,220	3,209	3,214	3,266	3,369		2,950
N.B.	1,968	2,003	2,243	2,427	2,517	2,575	2,656	2,662	2,743		2,333
Que.[3]	19,688	19,519	19,283	18,572	18,082	16,617	16,405	16,246	16,203		14,560
Ont.	35,877	36,593	36,066	35,392	34,623	33,781	33,141	33,071	32,513		23,827
Man.	3,086	2,864	2,737	2,580	2,488	2,582	2,483	2,540	2,627		2,250
Sask.	2,616	2,535	2,405	2,277	2,187	2,144	2,154	2,057	2,122		2,011
Alta.[4]	6,378	6,196	5,562	4,963	4,723	4,272	4,186	4,358	4,993		4,435
B.C.	6,254	5,841	5,871	5,667	5,385	4,964	5,092	4,987	5,045		4,262
Y.T.[5]	66	78	80	76	74	66	62	67	69		64
N.W.T.	..	89	96	101	103	111	110	112 [6]	99 [6]		79
Canada	**82,598**	**82,453**	**81,017**	**78,639**	**76,830**	**73,751**	**72,983**	**72,905**	**73,306**		**60,123**

Sources: HPDB/CIHI, LPNDB/CIHI

Notes

.. Information not available.

1. Figures from 1993 to 2001 represents total registered/licensed, regardless of activity/employment status. Data in 2002 represents a data series break and reflects registered, active practicing, employed in licensed practical nursing. CIHI data will differ from provincial data due to the CIHI collection, processing and reporting methodology. Please review the methodological notes for more comprehensive information regarding the collection and comparability of LPNDB data.
2. The 2002 data is not directly comparable to the data presented for 1993 to 2001 due to different collection methodologies. Data in 2002 reflects active practicing, employed in licensed practical nursing (Nunavut data is not available for 2002; Yukon did not submit "Employment Status", therefore all LPNs in Yukon are considered employed in practical nursing).
3. The profession of licensed practical nursing is a restricted profession but has no exclusive field of activity. It may be that in Quebec, there are some persons occupied with similar functions, without always using the title of licensed practical nurse and without being members of the Association.
4. Beginning in 1991, practical nurses in Alberta had to log a minimum of 1000 hours of work over the previous 4 years to qualify as "licensed"; therefore, the numbers decrease in subsequent years.
5. A Yukon license is not required if a Canadian licensed practical nurse is eligible for licensure, or is licensed elsewhere in Canada.
6. Northwest Territories 2000–2001 data as of March 31.

Table LPN-2. Number of Registered Licensed Practical Nurses per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	Series Break	2002 [2]
N.L.	476.4	499.6	502.0	509.1	508.5	517.3	529.0	541.6	541.7		519.1
P.E.I.	474.6	471.8	440.5	429.2	461.0	452.4	449.6	458.0	455.0		422.6
N.S.	354.7	350.4	349.0	338.6	344.1	342.3	340.9	346.3	357.0		312.1
N.B.	262.3	266.5	298.1	322.1	333.7	341.8	351.2	352.4	363.1		308.3
Que.	273.8	270.2	265.6	254.8	247.3	226.5	222.7	219.7	217.9		195.1
Ont.	333.7	336.0	327.0	317.0	306.1	295.3	285.8	280.8	271.8		196.8
Man.	275.5	254.4	242.0	227.3	219.0	226.7	217.1	221.5	228.8		195.6
Sask.	259.6	250.5	236.6	223.1	213.7	208.9	210.4	201.8	209.2		199.1
Alta.	237.3	227.7	201.6	176.9	164.8	145.7	140.5	143.7	161.8		141.8
B.C.	172.3	156.3	153.1	144.4	135.1	123.8	125.9	122.3	122.4		102.7
Y.T.	220.0	257.5	254.1	236.6	231.9	212.5	202.0	221.5	229.2		214.8
N.W.T.	..	216.0	230.8	242.5	248.6	271.2	268.5	273.1	240.4		190.7
Canada	**286.8**	**282.7**	**274.8**	**264.0**	**255.4**	**243.2**	**238.5**	**236.0**	**234.9**		**191.1**

Sources: HPDB/CIHI, LPNDB/CIHI

Notes

.. Information not available.

See Table LPN-1 for notes on the numerator data used in the calculation of the personnel per 100,000 rates. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C). The 2002 data is not directly comparable to the data presented for 1993 to 2001 due to different collection methodologies. Data in 2002 reflects active practicing, employed in licensed practical nursing (Nunavut data is not available for 2002; Yukon did not submit "Employment Status", therefore all LPNs in Yukon are considered employed in practical nursing).

Table LPN-3. Number of Registered, Active Licensed Practical Nurses by Employment Status and Province/Territory of Registration/Licensure, Canada, 2002

	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
ALL LPNs	**2,807**	**603**	**3,205**	**2,491**	**16,016**	**30,292**	**2,375**	**2,056**	**4,829**	**4,545**	**64**	**91**	**69,374**
Employed in practical nursing	2,759	593	2,950	2,333	14,560	23,827	2,250	2,011	4,435	4,262	64	79	60,123
Employed in other than practical nursing	6	*	36	0	0	2,378	0	*	32	202	0	0	2,661
Not employed	40	**	179	0	18	1,789	*	25	355	78	0	0	2,493
Not stated	2	2	40	158	1,438	2,298	**	**	7	3	0	12	4,097

Source: LPNDB/CIHI

Notes
* Value suppressed in accordance with CIHI privacy policy; cell value is from 1 to 4
** Value suppressed to ensure confidentiality; cell value is 5 or greater
CIHI data will differ from provincial/territorial data due to the CIHI collection, processing and reporting methodology.
Please review the Methodological Notes for more comprehensive information regarding the collection and comparability of LPNDB data.
Yukon did not submit "Employment Status", therefore all LPNs in Yukon are considered employed in practical nursing.
Nunavut data are not available for the year 2002.

Table LPN-4. Percentage Distribution of Registered, Active Licensed Practical Nurses by Employment Status and Province/Territory of Registration/Licensure, Canada, 2002

	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
ALL LPNs	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Employed in practical nursing	98.3	98.3	92.0	93.7	90.9	78.7	94.7	97.8	91.8	93.8	100.0	86.8	86.7
Employed in other than practical nursing	0.2	*	1.1	0.0	0.0	7.9	0.0	*	0.7	4.4	0.0	0.0	3.8
Not employed	1.4	**	5.6	0.0	0.1	5.9	*	1.2	7.4	1.7	0.0	0.0	3.6
Not stated	0.1	0.3	1.2	6.3	9.0	7.6	**	**	0.1	0.1	0.0	13.2	5.9

Source: LPNDB/CIHI

Notes
* Value suppressed in accordance with CIHI privacy policy; cell value is from 1 to 4
** Value suppressed to ensure confidentiality; cell value is 5 or greater
Please review the Methodological Notes for more comprehensive information regarding the collection and comparability of LPNDB data.
Yukon did not submit "Employment Status", therefore all LPNs in Yukon are considered employed in practical nursing.
Nunavut data are not available for the year 2002.
Totals may not sum to 100 percent due to rounding.

Endnotes

Sources

Figure LPN-1. Calculated from data in Table LPN-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure LPN-2. Calculated from data in Table LPN-2.

Table LPN-1. 1993–2001: Data supplied by provincial organizations (Newfoundland Council for Licensed Practical Nurses, Prince Edward Island Licensed Practical Nurses Registration Board, College of Licensed Practical Nurses of Nova Scotia, Association of New Brunswick Licensed Practical Nurses, Ordre des infirmières et infirmiers auxiliaires du Québec, College of Nurses of Ontario, College of Licensed Practical Nurses of Manitoba, Saskatchewan Association of Licensed Practical Nurses, College of Licensed Practical Nurses of Alberta, College of Licensed Practical Nurses of British Columbia, Yukon Territory Registrar for Licensed Practical Nurses (Department of Community Services), Northwest Territories Registrar for Licensed Practical Nurses (Health and Social Services).

2002: Licensed Practical Nurses Database, Canadian Institute for Health Information

Table LPN-2. Data calculated based on Table LPN-1 and population estimates from Statistics Canada shown in Appendix C.

Table LPN-3. Licensed Practical Nurses Database, Canadian Institute for Health Information

Table LPN-4. Licensed Practical Nurses Database, Canadian Institute for Health Information

Medical Laboratory Technologists

Definition

Medical Laboratory Technologists perform laboratory tests that assist physicians and other health professionals in the diagnosis and treatment of patients.

Responsibilities/Activities

The duties of a Medical Laboratory Technologist include: performing and interpreting diagnostic tests on blood, tissue, and body fluids; cultivating, isolating and identifying bacteria, fungi, viruses, and parasites which invade the body; counting blood cells, recognizing abnormalities and reporting changes which have taken place in blood cells; determining blood type and crossmatching for transfusions; and arranging tissue in sections, staining and preparing specimens for examination under the microscope. Specialty areas of medical laboratory technology also include diagnostic cytology, the study of cells taken from the body for the detection of cancer, and clinical genetics, the laboratory investigation of the basis of genetic disease.

Practice Setting

Most medical laboratory technologists work in hospitals or government laboratories, private medical clinics, public health clinics or blood transfusion service labs.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) and regulatory/licensing authorities (membership is a condition of employment) across Canada as the primary source of medical laboratory technologist (MLT) data.

Secondary Data Source: This publication utilizes additional data from two survey sources (Labour Force Survey/Statistics Canada and Census/Statistics Canada). Both Census and LFS estimates are based on the Standard Occupational Classification D211 Medical Laboratory Technologists and Pathologists' Assistants.

Regulatory Environment

- Membership with the Canadian Society for Medical Laboratory Science (CSMLS) is voluntary.
- As of 2002, registration with the provincial organization (society or college) was mandatory in order to practice as an MLT in Ontario, Quebec, Saskatchewan, New Brunswick, and Alberta. As of 2003, Nova Scotia also moved to a regulated environment.
- Please note that since registration with provincial associations is not mandatory in all provinces, the membership counts provided in Table MLT-1 for Newfoundland and Labrador, Prince Edward Island, Nova Scotia, Manitoba, British Columbia, and the Territories are based on voluntary registration only.

	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	NR	NR	NR	1992/ 1973 (Title)	1982 (Blood work)	1994	NR	1996	2002	NR	NR	NR	NR

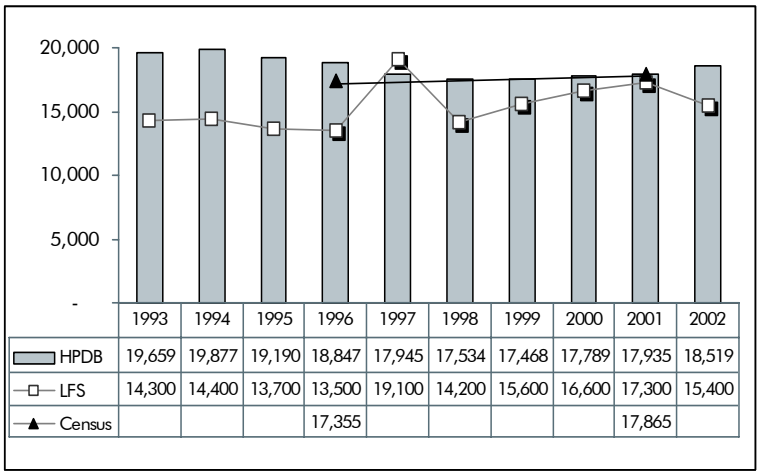
NR = Not Regulated as of 2002.

Supply Trends

- During the common comparable years of 1996 and 2001, HPDB counts of active registered medical laboratory technologists decreased 4.8%, the Census estimates of employed medical laboratory technologists in the workplace in Canada increased 2.9%, while the Labour Force Survey (LFS) estimates indicate a 28.1% increase when comparing these two years.
- Census estimates of employed medical laboratory technologists in the workplace in Canada were lower than HPDB counts in both common comparable years: 7.9% lower in 1996 and <1% lower in 2001. LFS estimates for the same years are lower than HPDB counts: 28.4% lower in 1996 and 3.5% lower in 2001. While there are some periods where LFS estimates appear to follow the trend in HPDB data, LFS estimates overall, did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002.

- As shown in Figure MLT-1, the number of medical laboratory technologists, as indicated in the HPDB, has fluctuated from 1993 to 2002. Overall, this profession experienced a 5.8% decrease in the number of medical laboratory technologists over this ten-year period.
- Table MLT-1 shows the distribution of medical laboratory technologists by province from 1993 to 2002. Only three provinces experienced positive growth in this profession over this ten-year period, Newfoundland and Labrador (34.1%), Quebec (16.1%), and New Brunswick (1.2%). The largest percentage decrease occurred in Alberta (17.8%).
- A downward trend, as indicated by the HPDB, emerged in 1995 and continued until 2000 at which time the number of medical laboratory technologists began to increase.

Figure MLT-1. Number of Medical Laboratory Technologists from Selected Data Sources, Canada, 1993–2002



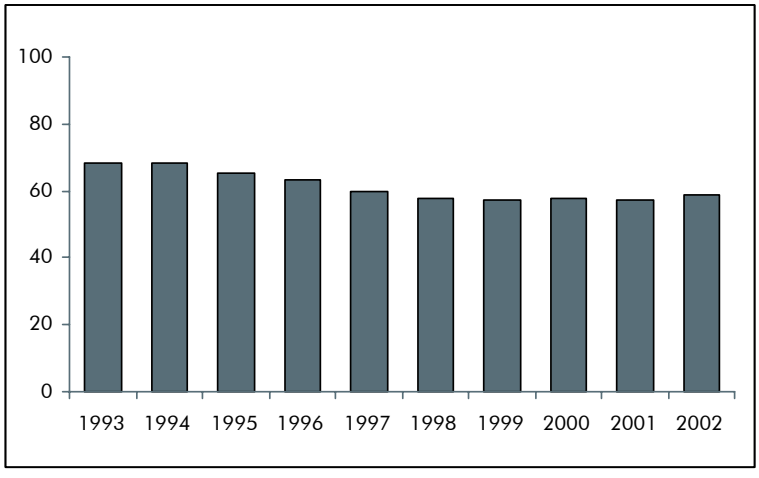
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	19,659	19,877	19,190	18,847	17,945	17,534	17,468	17,789	17,935	18,519
LFS	14,300	14,400	13,700	13,500	19,100	14,200	15,600	16,600	17,300	15,400
Census				17,355					17,865	

Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

Growth in Supply Relative to Population

- The rate of increase of medical laboratory technologists (as reported in HPDB) has been lower than the population growth rate, resulting in fewer medical laboratory technologists per 100,000 population across Canada. The number of medical laboratory technologists per 100,000 population in Canada decreased 13.6% from 68.2 in 1993 to 58.9 in 2002 (see Figure MLT-2 and Table MLT-2). Over this same time period the Canadian population increased by 9.1%.
- Table MLT-2 shows in 2002 that most provinces were the same or above the Canadian ratio of medical laboratory technologists per 100,000 population. Only three provinces were below: British Columbia (58.7), Ontario (57.3) and Quebec (38.3).

Figure MLT-2. Number of Active Registered Medical Laboratory Technologists* per 100,000 Population, Canada, 1993–2002



Source: HPDB/CIHI

* This data includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

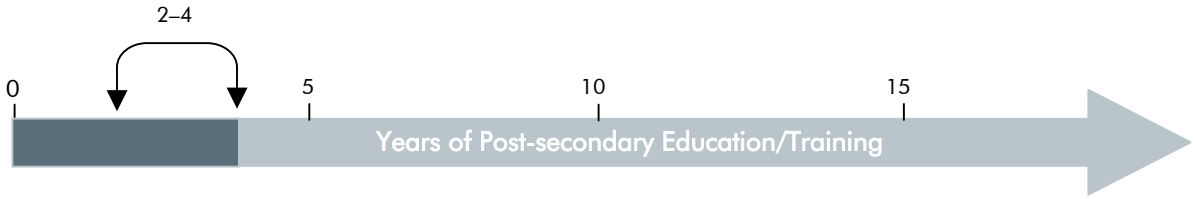
Accessing Personnel

- MLT services are provided upon request from a qualified physician or other authorized health care provider (physicians are the primary referring profession).

What Else Do We Know?

- The average age of medical laboratory technologists increased from 37 to 41 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- In 2001, the majority (80.6%) of individuals in the medical laboratory technologist profession were female (Source: Census Data, Statistics Canada).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
2–4	Graduation from accredited Canadian training program—length varies depending on program—see individual program information at: http://www.csmls.org/english/sciencecareer.htm#.
	Clinical Genetics only available in Ontario and British Columbia.

Changes to Education and/or Training Requirements

- For information please contact CSMLS at www.csmls.org.

Possible Areas of Certified Specialization

- General Medical Laboratory Technology
- Diagnostic Cytology
- Clinical Genetics

What's Happening?

Listed are references to key research documents relating to medical laboratory technology that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *Medical Laboratory Technologists National Human Resources Review—Nation-wide Alert*, Davis, Kurt, Canadian Journal of Medical technology—June 2002, available online at http://www.csmls.org/english/pdf/annoncements/2002review-eng.pdf
2. *Medical Laboratory Technologists National Human Resources Review—A Call for Action*, CSMLS, April 2001—available online at: http://www.csmls.org/english/pdf/annoncements/csmls-hr-report.pdf
3. *Planning and Education for Medical Laboratory Technologists in* Ontario, Ministry of Health, Province of Ontario, Public release—spring 2003.
4. *An Environmental Scan of the Human Resources Issues Affecting Medical Laboratory Technologists and Medical Radiation Technologists (update)*, Assessment Strategies for the Advisory Committee on Health Human Resources, Health Canada 2001 (released 2002).
5. *An Environmental Scan of the Human Resources Issues Affecting Medical Laboratory Technologists and Medical Radiation Technologists*, Assessment Strategies for the Advisory Committee on Health Human Resources, Health Canada, 1998.
6. *CSMLS New Graduate Employment Survey 2002*, Canadian Journal of Medical Laboratory Science, 65:2003.

Research in Progress

1. *Clinical Placements for Medical Laboratory Technologists—Costs, Benefits and Alternatives*, Grant, Moira, Davis, Kurt—project currently seeking funding source, Contact: Kurt Davis, CSMLS: 1(800) 263-8277 ext. 11, e-mail: khdavis@csmls.org, web: www.csmls.org.
2. *New Graduate Employment Uptake—ongoing annual study by* CSMLS, Contact Kurt Davis, CSMLS: 1(800) 263-8277 ext. 11, e-mail: khdavis@csmls.org, web: www.csmls.org.

** Please note that this information in this section is adapted from a survey completed by the staff at The Canadian Society for Medical Laboratory Technologists (see Appendix B for the survey tool).

Data Tables

Table MLT-1. Number of Active Registered* Medical Laboratory Technologists by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	*267*	*299*	*304*	*325*	*318*	*313*	*329*	*319*	*349*	*358*
P.E.I.	*116*	*108*	*104*	*107*	*102*	*104*	*103*	*105*	*102*	*96*
N.S.	*897*	*869*	*847*	*799*	*773*	*750*	*754*	*747*	*792*	*821*
N.B.[1]	642	647	649	662	632	623	623	643	647	650
Que.[2]	2,464	2,424	2,383	2,366	2,469	2,606	2,694	2,724	2,810	2,860
Ont.[3]	*7,510*	8,242	8,247	8,139	7,684	7,351	7,166	7,023	6,846	6,934
Man.	*1,083*	*1,069*	*1,039*	*1,010*	*974*	*926*	*938*	*952*	*943*	*952*
Sask.[4]	*1,103*	*1,026*	*998*	*951*	*946*	*927*	*954*	*972*	*967*	*962*
Alta.[5]	*2,615*	*2,300*	*1,800*	*1,812*	*1,462*	*1,432*	*1,450*	*1,843* [6]	*1,995*	*2,149*
B.C.	*2,915*	*2,848*	*2,771*	*2,630*	*2,538*	*2,457*	*2,409*	*2,416*	*2,443*	*2,437*
Y.T. & N.W.T.	*47*	*45*	*48*	*46*	*47*	*45*	*48*	*45*	*41*	*40*
Canada	***19,659***	***19,877***	***19,190***	***18,847***	***17,945***	***17,534***	***17,468***	***17,789***	***17,935***	***18,519***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized cells* in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

1. New Brunswick data is provided by the New Brunswick Society of Medical Laboratory Technologists (NBSMLT), a regulatory authority in which licensure is mandatory for practice in New Brunswick; individuals permitted registration under a legislative "grandfather" clause are not included in these counts.
2. Quebec data is provided by the Ordre professionnel des technologistes médicaux du Québec (OPTMQ), the provincial regulatory authority since 1973. Data as of March 31. OPTMQ numbers for Quebec are low as their mandatory registration is still going into effect.
3. Ontario data from 1994 to 2002 is provided by the College of Medical Laboratory Technologists of Ontario, a regulatory authority in which licensure is mandatory for practice in Ontario.
4. Saskatchewan data from 1996 to 2002 is provided by the Saskatchewan Society of Medical Laboratory Technologists, a regulatory authority in which licensure is mandatory for practice in Saskatchewan.
5. The Alberta Society of Medical Laboratory Technologists (ASMLT) is a professional organization in which licensure is mandatory as of 2002, however, data for the years 1994 to 2002 is an estimate provided by the ASMLT.
6. Increase may be due to legislation forthcoming and employers are beginning to require that MLTs be certified.

Table MLT-2. Number of Active Registered Medical Laboratory Technologists per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	*46.2*	*52.4*	*53.9*	*58.3*	*57.8*	*57.6*	*60.9*	*59.5*	*65.4*	*67.4*
P.E.I.	*87.2*	*80.4*	*76.7*	*78.4*	*74.5*	*75.8*	*74.6*	*75.8*	*73.2*	*68.4*
N.S.	*96.9*	*93.7*	*91.1*	*85.6*	*82.6*	*80.0*	*80.0*	*79.2*	*83.9*	*86.9*
N.B.	*85.6*	*86.1*	*86.3*	*87.9*	*83.8*	*82.7*	*82.4*	*85.1*	*85.7*	*85.9*
Que.	*34.3*	*33.6*	*32.8*	*32.5*	*33.8*	*35.5*	*36.6*	*36.8*	*37.8*	*38.3*
Ont.	*69.9*	*75.7*	*74.8*	*72.9*	*67.9*	*64.3*	*61.8*	*59.6*	*57.2*	*57.3*
Man.	*96.7*	*95.0*	*91.9*	*89.0*	*85.7*	*81.3*	*82.0*	*83.0*	*82.1*	*82.8*
Sask.	*109.5*	*101.4*	*98.2*	*93.2*	*92.4*	*90.3*	*93.2*	*95.3*	*95.3*	*95.2*
Alta.	*97.3*	*84.5*	*65.2*	*64.6*	*51.0*	*48.8*	*48.7*	*60.8*	*64.6*	*68.7*
B.C.	*80.3*	*76.2*	*72.3*	*67.0*	*63.7*	*61.3*	*59.6*	*59.3*	*59.3*	*58.7*
Y.T. & N.W.T.	*66.8*	*62.9*	*65.7*	*62.4*	*64.1*	*62.5*	*67.0*	*63.1*	*57.5*	*56.2*
Canada	***68.2***	***68.2***	***65.1***	***63.3***	***59.6***	***57.8***	***57.1***	***57.6***	***57.5***	***58.9***

Source: HPDB/CIHI

Note

See Table MLT-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ration in Table MLT-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Table MLT-3. Number of CSMLS General Certificate Exam Candidates[1] Who Obtained General Certification by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	13	16	13	23	17	22	21	17	13	18
N.S.	25	22	20	22	4	1	2	1	3	4
N.B.	28	28	14	17	17	9	7	13	14	14
Que.	138	182	181	178	187	208	148	152	142	125
Ont.	213	163	150	151	138	85	57	36	56	83
Man.	34	29	23	21	19	0	3	1	7	4
Sask.	44	48	29	19	5	0	10	4	15	13
Alta.	112	93	61	36	26	19	25	24	35	47
B.C.	59	80	52	15	38	17	3	16	52	36
No formal program[2]	0	3	2	0	1	1	0	1	1	0
Canada	**666**	**664**	**545**	**482**	**452**	**362**	**276**	**265**	**338**	**344**

Source: HPDB/CIHI

Notes
1. Includes candidates writing the national exam for the first time.
2. Includes foreign-trained students deemed eligible to write the Canadian Society for Medical Laboratory Science Certification exam.

Endnotes

Sources

Figure MLT-1. Calculated from data in Table MLT-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure MLT-2. Calculated from data in Table MLT-2.

Table MLT-1. The Canadian Society of Medical Laboratory Science, College of Medical Laboratory Technologists of Ontario, Alberta Society of Medical Laboratory Technologists, New Brunswick Society of Medical Laboratory Technologists, Saskatchewan Society of Medical Laboratory Technologists, Ordre professionnel des technologistes médicaux du Québec.

Table MLT-2. Data calculated based on Table MLT-1 and population estimates from Statistics Canada shown in Appendix C.

Table MLT-3. The Canadian Society of Medical Laboratory Science.

Medical Physicists

Definition

Medical physicists are health care professionals with specialized training in the medical applications of physics. The work of medical physicists often involves the use of physical agents, which include X-rays, radioactive materials, ultrasound, magnetic and electric fields, infrared and ultraviolet light, heat and light in diagnosis and therapy.

Responsibilities/Activities

Specific areas of activity for a medical physicist include clinical service, radiation safety, research and development, and teaching. **Clinical service**: The roles of a medical physicist in imaging and radiotherapy include administration of quality assurance programs, development of specialized procedures and protocols, and equipment design, specification, acceptance, testing, calibration, and troubleshooting. Medical physicists are primarily responsible for the accuracy of the radiotherapy treatments delivered. **Radiation safety**: Medical physicists have expertise in radiation safety. Canadian regulations recognize medical physicists who are certified by the Canadian College of Physicists in Medicine as Radiation Safety Officers for medical facilities employing radiation-emitting devices. **Research and development**: Canadian radiotherapy physicists play a central role in a variety of research areas such as the design and construction of radiotherapy treatment equipment, the use of heat and light in cancer treatment, the theory of radiation absorption and dose calculation and in radiobiology. Canadian laboratories are leaders in positron emission tomography, magnetic resonance imaging, ultrasound, X-ray and radionuclide imaging and biomagnetic mapping, among other areas. **Teaching**: In Canada, most medical physicists have some affiliation with a university. Many medical physicists teach in graduate and undergraduate medical physics and physics programs. They also teach radiology, radiation oncology, and nuclear medicine residents, medical students, and radiology, radiotherapy, and nuclear medicine technologists.

Practice Setting

Most medical physicists work in cancer treatment facilities, hospital diagnostic imaging departments, or hospital-based research establishments. Others work in universities, government, and industry.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) across Canada as the primary source of medical physicist data.

Secondary Data Source: The 1991 Standard Occupational Classification (SOC 1991) does not adequately differentiate medical physicists and therefore, Labour Force Survey and Census estimates were not generated. The SOC 1991 unit group C011 Physicists and Astronomers, was determined to be to broadly based to provide a reasonable comparison to HPDB data.

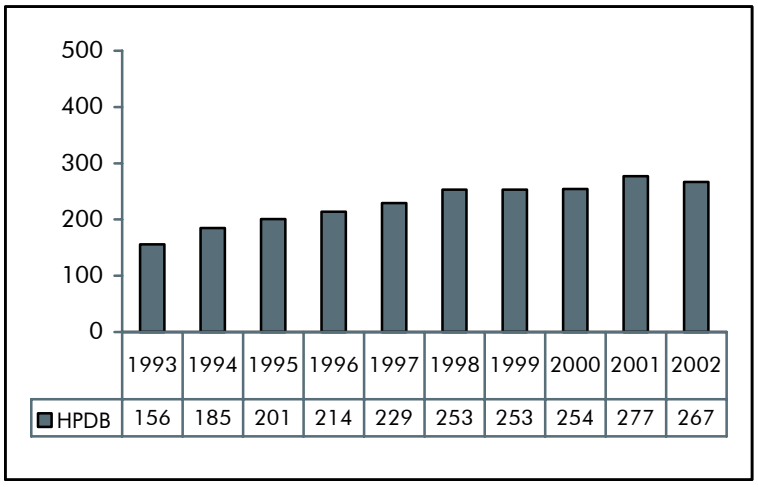
Regulatory Environment

- Although there are currently no regulatory requirements for medical physicists, regulatory agencies may recommend that qualified medical physicists fulfill certain functions. For example, the federal Canadian Nuclear Safety Commission does recommend qualified Medical Physicists as Radiation Safety Officers for radiation teletherapy and brachytherapy facilities. There are also efforts currently underway in several provinces to establish Medical Physics as a regulated profession. Canadian College of Physicists in Medicine (CCPM) certification, or equivalent, is an employer requirement in many jurisdictions and, in general, having such certification enhances employment opportunities.

Supply Trends

- As shown in Figure MP-1, the number of medical physicists increased steadily from 1993 to 1998 and then remained consistent from 1998 to 2000. The number of medical physicists increased again in 2001, and then declined in 2002. Overall, there was an increase in the number of medical physicists during this ten-year period of 71.2% (156 in 1993 to 267 in 2002).
- Provincially, the largest percentage increases over this ten-year period have occurred in Manitoba and Newfoundland and Labrador. Table MP-1 shows the distribution of medical physicists by province from 1993 to 2002.

Figure MP-1. Number of Medical Physicists, Canada, 1993–2002



Source: HPDB/CIHI

Growth in Supply Relative to Population

- The number of medical physicists per 100,000 population was not generated.

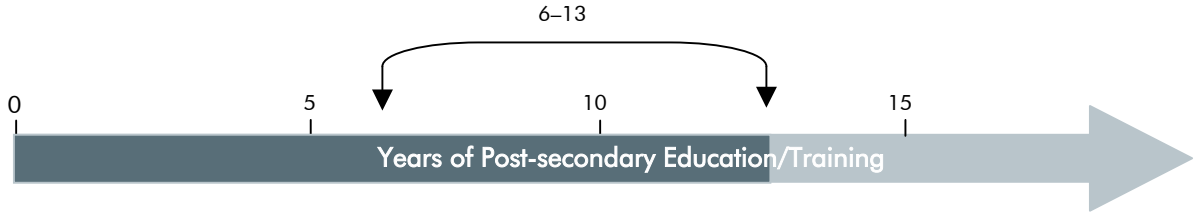
Accessing Personnel**

- Medical physicist services are accessed indirectly when patients are referred (typically by a general practitioner or family physician) to a specialist physician (radiologist, nuclear medicine physician, cardiologist, or oncologist).
- Medical Physicists work in support of radiation therapy programs for cancer treatment, or in support of hospital imaging programs such as magnetic resonance imaging, nuclear medicine, or radiological imaging. For radiation therapy programs, which account for the majority of medical physicists in Canada, a primary care physician or a surgeon typically refers patients to a Radiation Oncologist. The Radiation Oncologist, often in consultation with a Medical Physicist, decides what form of radiation therapy, if any, is appropriate for that patient. Medical Physics services are then provided to support the patient's radiation therapy. As such, the primary drivers of medical physics resources are the numbers of patients referred for radiation therapy, the capacity of Canadian radiation therapy centers to treat those patients, and the complexity of treatment requested by the Radiation Oncologists.

What Else Do We Know?

- Information on gender and average age is not available at this time.

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
4	Undergraduate degree in Physics or Engineering Physics.
2	Master of Science degree in Medical Physics or Physics.
4–5	Frequently a PhD degree in Medical Physics or Physics.
2	Frequently Residency training in a clinical setting.

** Please note that this information in this section is adapted from a survey completed by the staff at The Canadian Organization of Medical Physicists (COMP) (see Appendix B for the survey tool).

Changes to Education and/or Training Requirements

- Currently a CCPM (Canadian College of Physicists in Medicine) certification is not a requirement to work in Canada, however, in many jurisdictions a CCPM certification is an employer requirement.
- In order to be CCMP certified, you must also be a COMP (Canadian Organization of Medical Physicists) member, which means you have to hold a MSc. (or higher) in medical physics and be actively practicing.
- Changes to the process for certification with the CCPM are currently being implemented. The most significant of which is the introduction of an oral component to the traditional written examination required for membership with the CCPM.
- Efforts are currently underway in several provinces to establish Medical Physicists as a regulated profession; this process may result in the development of requirements for entry-to-practice for the profession.

Possible Areas of Certified Specialization

- The Canadian College of Physicist in Medicine certifies the clinical competence of Medical Physicists in four sub-specialties: Therapeutic Radiological Physics, Diagnostic Radiological Physics, Nuclear Medicine Physics, and Magnetic Resonance Imaging. The certification process includes specific certification in Radiation Safety.

What's Happening?

Listed are references to key research documents relating to medical physicists that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *Quality assurance in Radiotherapy: the importance of medical physics staffing levels. Recommendations from an ESTRO/EFOMP joint task group*. Belletti, S. et. al., 1996, Radiother. Oncol. 41: 89-94.
2. *Guidelines for the provision of physics services to radiotherapy*. Council of the Institute of Physics & Engineering in Medicine (IPEM).
3. *Manual of cancer services standards*. 2001. NHS Executive, Health Services Directorate, Wellington House, London, SE1 8UG U.K. http://www.doh.gov.uk/cancer/mcss.htm.
4. *Staffing levels and responsibilities of physicists in diagnostic radiology*. AAPM Report No. 33., 1991, American Institute of Physics, c/o AIDC, 64 Depot Road, Colchester, Vermont, 05446, USA,1 (800) 445-6638.
5. *Radiation Oncology in Integrated Cancer Management*, Report of the InterSociety Council for Radiation Oncology, 1986.

Research in Progress

1. *Canadian Strategy on Cancer Control: Human Resources Planning Working Group, Final Report*, January 2002. http://209.217.127.72/cscc/pdf/finalhumanresourcesJan2002.pdf.

** Please note that this information in this section is adapted from a survey completed by the staff at The Canadian Organization of Medical Physicists (COMP) (see Appendix B for the survey tool).

Data Tables

Table MP-1. Number of Members of the Canadian Organization of Medical Physicists (COMP) by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	*1*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*3*
P.E.I.	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
N.S.	*8*	*9*	*8*	*9*	*8*	*8*	*8*	*9*	*8*	*8*
N.B.	*5*	*5*	*5*	*5*	*6*	*6*	*6*	*6*	*6*	*5*
Que.	*27*	*29*	*34*	*34*	*39*	*41*	*43*	*41*	*44*	*43*
Ont.	*75*	*87*	*90*	*105*	*107*	*123*	*117*	*118*	*127*	*121*
Man.	*3*	*9*	*10*	*9*	*13*	*13*	*13*	*12*	*15*	*15*
Sask.	*5*	*7*	*7*	*8*	*9*	*11*	*11*	*10*	*12*	*10*
Alta.	*15*	*18*	*18*	*19*	*21*	*25*	*27*	*27*	*29*	*26*
B.C.	*16*	*18*	*26*	*22*	*23*	*23*	*25*	*28*	*33*	*35*
Y.T. & N.W.T.	..	..	..	..	..	..	..	..	..	..
Canada	***156***	***185***	***201***	***214***	***229***	***253***	***253***	***254***	***277***	***267***

Source: HPDB/CIHI

Notes

This data table includes voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized* cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider).

.. Information not available.

Data provided by COMP (Canadian Organization of Medical Physicists) and is usually as of August/September of given year.

Endnotes

Sources

Figure MP-1. Calculated from data in Table MP-1.

Table MP-1. Canadian Organization of Medical Physicists (COMP)

Medical Radiation Technologists

Definition

Medical radiation technologists (MRTs) operate diagnostic imaging, and radiation therapy equipment to produce images of body structure and function and administer radiation treatment for the diagnosis and treatment of injury and disease. Medical Radiation Technology encompasses the four disciplines of Magnetic Resonance, Nuclear Medicine, Radiological Technology and Radiation Therapy.

Responsibilities/Activities

MRT's duties include operating machines and accessory equipment, including plain image, fluoroscopy, mammography, computed tomography scan (CT), angiography, magnetic resonance (MR), gamma cameras, positron emission tomography (PET) scanners, ultrasound, and radiation therapy treatment units to either produce images of body structure and function for the diagnosis and/or treatment by radiologists of disease or injury, and/or to plan and deliver radiation treatment. MRT's actively contribute to patient care, record and process patient data, address radiation (or magnetism) safety issues for patients and staff, collaborate as team members with other health care providers, and perform quality assurance and quality control protocols on equipment. They may act as radiation safety officers for their institution or clinic.

Practice Setting

MRT's may be employed in hospitals, cancer treatment centers, clinics, research and education facilities and in equipment sales and application.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) and regulatory/licensing authorities (membership is a condition of employment) across Canada as the primary source of medical radiation technologist (MRT) data.

Secondary Data Source: This publication utilizes additional data from two survey sources (Labour Force Survey/Statistics Canada and Census/Statistics Canada). Both Census and LFS estimates are based on the Standard Occupational Classification D215 Medical Radiation Technologists.

Regulatory Environment

- Registration with either a provincial licensing authority or with the Canadian Association of MRTs (CAMRT) is mandatory in all provinces with the exception of British Columbia.
- Registration with a provincial regulatory authority as a condition of employment for medical radiation technologists is mandatory in six provinces.

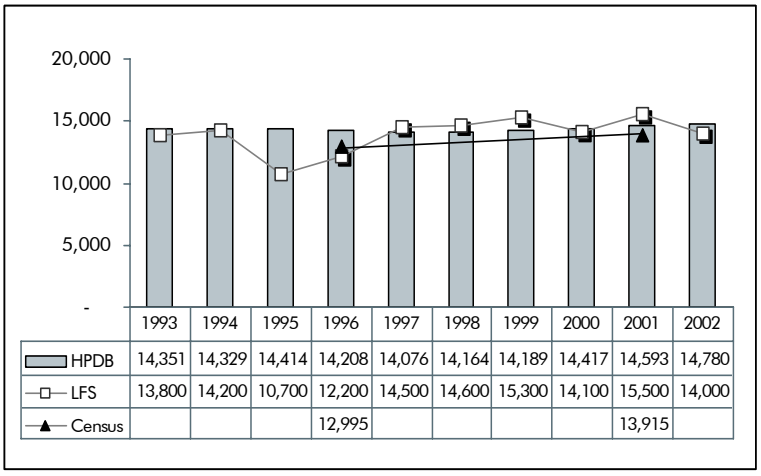
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	NREG	NREG	1958, NREG	1958, NREG	1973	1980*/ 1993*	NREG	1983, NREG	1980, NREG	NR	..	..	..

.. Information not available.
NREG = Mandatory registration with CAMRT (if year and NREG is present, then regulation with CAMRT and the province is mandatory).
NR = Not Regulated.
* 1980—Radiation Therapy Radiography; 1993—Nuclear Medicine.

Supply Trends

❖ During the common comparable years of 1996 and 2001, HPDB counts of active registered medical radiation technologists increased 2.7%, the Census estimates of employed medical radiation technologists in the workplace in Canada increased 7.1%, and the Labour Force Survey (LFS) estimates increased 27.0%
(see Figure MRT-1).

Figure MRT-1. Number of Medical Radiation Technologists from Selected Data Sources, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	14,351	14,329	14,414	14,208	14,076	14,164	14,189	14,417	14,593	14,780
LFS	13,800	14,200	10,700	12,200	14,500	14,600	15,300	14,100	15,500	14,000
Census				12,995					13,915	

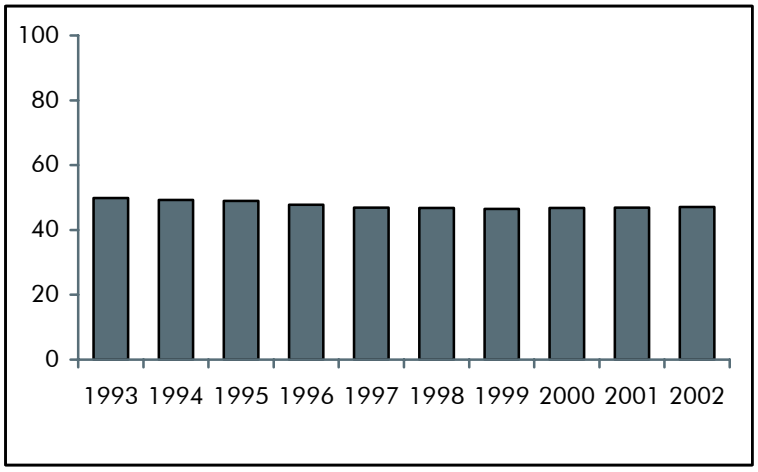
Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

- ❖ Census estimates of employed medical radiation technologists in the workplace in Canada were lower than HPDB counts in both common comparable years: 8.5% lower in 1996 and 4.6% lower in 2001. LFS estimates for the same years were 14.1% lower than HPDB counts in 1996 and 6.2% higher than HPDB counts in 2001. While there are some periods where LFS estimates appear to follow the trend in HPDB data, LFS estimates overall, did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002.
- As shown in Figure MRT-1, the HPDB counts of active practicing MRTs have increased from 1993 to 2002. This represents a 3.9% increase in the number of licensed MRTs over this ten-year period.
- Table MRT-1 shows the distribution of active registered MRTs by province from 1993 to 2002. Provincially, the largest percentage increases over this ten-year period occurred in New Brunswick (16.7%), British Columbia (12.2%), and Saskatchewan (11.6%).
- A decrease in the number of MRTs was experienced in Manitoba (4.2%), and Nova Scotia (2.8%).

Growth in Supply Relative to Population

- In 2002, there were 47.1 MRTs per 100,000 population in Canada (see Figure MRT-2 and Table MRT-2). This is down 5.6% from 1993 (49.9 MRTs per 100,000 population). Over this same time period the Canadian population increased by 9.1%.
- The number of MRTs per population ranged from a low of 40.4 per 100,000 in British Columbia to a high of 62.8 per 100,000 in New Brunswick.

Figure MRT-2. Number of Active Registered Medical Radiation Technologists* per 100,000 Population, Canada, 1993–2002



Source: HPDB/CIHI

* This data includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

Accessing Personnel

- There is no information available at this time.

Factors That May Influence Demand for Personnel**

- Changes in the number and range of diagnostic imaging procedures.
- The newer technology allows for more definitive diagnosis and precise treatment, but many of the protocols take longer to perform and require specialized human resources not currently available in the system.
- Complementary imaging modalities (e.g. CT assisting radiation treatment planning, Sonography assisting X-ray mammography) may increase demand for imaging services.
- Change in policy regarding maternity and parental leave may reduce the pool of active technologists.
- International recruitment of personnel who are attracted to the high quality of Canadian MRTs.
- Increased malpractice suits may drive an increase in diagnostic imaging procedures to lower professional liability risk among physicians.
- Generally, newer technology attracts more seasoned technologists that create a subsequent shortage among general duty technologists.
- Changes in the entry-level educational requirements.
- MRTs are assuming more delegated medical functions from such specialties as radiologists and oncologists. For example, technologists are already performing barium enema examinations in some parts of the country. Such roles impose greater workloads on such MRTs. This expanded function for MRTs will draw away more experienced technologists to perform such roles. Education to help them assume these functions may also create a greater demand for personnel during the transition period that follows.

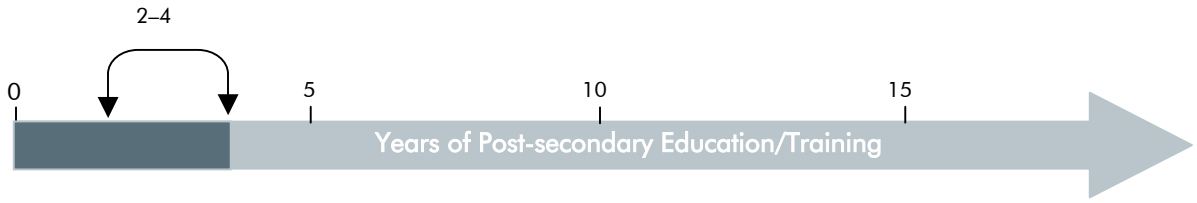
What Else Do We Know?

- The average age of MRTs increased from 36 to 40 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- The majority (80.3%) of individuals in the medical radiation technology profession are female (Source: Census Data, Statistics Canada).
- MRTs are one of the imaging professions profiled in CIHI's recent (2003) report, *Medical Imaging in Canada*. This report is the first comprehensive report on the imaging field in Canada, incorporating the results of the 2003 National Survey of Selected Medical Imaging Equipment as well as new data from Statistics Canada, provincial/territorial ministries of health, professional associations, and other sources.

Visit www.cihi.ca for more information.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Association of Medical Radiation Technologists (CAMRT) (see Appendix B for the survey tool).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
2–3	"Diploma exit" education program—varies in duration across Canada.
3–4	"Degree exit" education program—implemented in some provinces in Canada.

- The above education requirements currently apply to the MRT certification disciplines of Nuclear Medicine, Radiation Therapy and Radiological Technology. The fourth certification available for Magnetic Resonance, currently considered a "Second" discipline whereby candidates must have first qualified in another discipline (Nuclear Medicine, Radiation Therapy, Radiological Technology or Ultrasound), is also expected to move towards an entry-level discipline in the future.
- Information on the status of individual Canadian MRT programs' transition to degree exit is available from the Canadian Association of Medical Radiation Technology [www.camrt.ca].

Changes to Education and/or Training Requirements

- The CAMRT membership voted to support a "Degree as an entry to practice" requirement effective January 2005. This date has recently been extended up to 2010 at the request of several provincial MRT associations. Nevertheless, some 15 entry-level programs across the country have already made the move towards a degree exit, resulting in an additional year in program duration.

Areas of Certified Specialization

- The Canadian Association of Medical Radiation Technologists (CAMRT) currently offers the following certified specializations:
  - Breast imaging
  - Management development
  - Computed tomography (CT)
  - Advanced practice (in the four association disciplines)

What's Happening?

Listed are references to key research documents relating to Medical Radiation Technology that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *Canadian Association of Radiologists (March 2001). Timely access to quality care. The obligation of government, the right of Canadians*. Submission to the Senate Committee on the Health of Canadians.
2. *Canadian Radiation and Imaging Societies in Medicine—CRISM (May 2001)*. Submission to the Senate Committee on the Health of Canadians. 10 p.
3. Davis K (August 2002). *Report on medical laboratory technologist information databases in Canada*. Health Human Resources Strategy Division, Health Care Strategies and Policy Directorate, Health Canada. Unpublished document. 75 p.
4. Health Canada (1999). *An environmental scan of the human resources issues affecting medical laboratory technologists and medical radiation technologists*. Prepared for the Allied Health Working Group, Federal/Provincial/Territorial Advisory Committee on Health Human Resources. Ottawa ON.
5. Health Canada (2001). *An environmental scan of the human resources issues affecting medical laboratory technologists and medical radiation technologists*. Prepared for the Allied Health Working Group, Federal/Provincial/Territorial Advisory Committee on Health Human Resources. Ottawa ON.
6. Hollenberg CH, Chair (1999). *Report of the task force on human resources for radiation services (Ontario)*. Toronto ON: Ontario Ministry of Health.
7. Lauzon R, Lachance MJ, McCammond R *et al* (2000). *Human resource planning issues affecting radiation therapists*. Can J Med Rad Technology 31;2 49-56. Se also Erratum: CJMRT 31;4 207.
8. McKay NE (August 1995). *Pragmatism or pie in the sky. Integrated Health Human Resources Development*. Produced by a coalition of: Canadian Association of Occupational Therapist, Canadian Diabetic Association, and Canadian Nurses Association, Canadian Physiotherapy Association. 23 p.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Association of Medical Radiation Technologists (CAMRT) (see Appendix B for the survey tool).

9. Ordre des technologies en radiologie du Québec. *Technologues en radio-oncologie. Document de travail*. Rapport du groupe de travail sur la planification de la main-d'œuvre. 11 janvier 2000.

10. Stone, Colin (1998). *Radiation therapists: an Ontario based human resources study*. Toronto ON: the Michener Institute for Applied Health Services.

11. Lauzon, Richard (April 2003). *Human Resources Database Study for Medical Radiation Technologists*. Health Human Resources Strategy Division, Health Care Strategies and Policy Directorate, Health Canada. Unpublished document. 48 p.

Research in Progress

- There is a research study currently in progress in Quebec looking at the comparison between MRTs and radiologists in their performance of lower GI imaging. For further information please contact the CAMRT.

Data Tables

Table MRT-1. Number of Active Registered Medical Radiation Technologists[1] by Province/Territory, Canada, 1993–2002*

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	263	265	271	262	265	262	262	262	279	278 [4]
P.E.I.	69	64	65	65	64	68	68	67	67	70
N.S.	532	524	522	498	515	517	507	502	496	517
N.B.	407	426	443	451	445	454	458	460	463	475
Que.[2]	3,606	3,678	3,730	3,685	3,577	3,569	3,604	3,679	3,679	3,714
Ont.[3]	5,423	5,396	5,384	5,260	5,197	5,257	5,263	5,306	5,388	5,476
Man.	618	639	657	651	616	618	595	586	581	592
Sask.	404	426	418	418	414	420	420	438	450	451
Alta.	1,413	1,362	1,352	1,314	1,322	1,376	1,383	1,455	1,515	1,528
B.C.	*1,496*	*1,549*	*1,572*	*1,604*	*1,661*	*1,623* [4]	*1,629* [4]	*1,662* [4]	*1,675* [4]	*1,679* [4]
Y.T. & N.W.T.	..	..	..	..	..	..	..	..	..	..
Canada	***14,231***	***14,329***	***14,414***	***14,208***	***14,076***	***14,164***	***14,189***	***14,417***	***14,593***	***14,780***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized* cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). In the HPDB, active registered represents the number of Medical Radiation Technologists subject to: mandatory registration with a provincial regulatory authority (i.e. Ontario and Quebec); mandatory registration with the CAMRT (all other provinces except Ontario, Quebec and British Columbia); or voluntary membership data in the case of British Columbia (not regulated).

.. Information not available .

1. Membership in Quebec refers to l'Ordre des techniciens en radiologie du Québec; membership for the rest of Canada refers to the Canadian Association of Medical Radiation Technologists.
2. Data is provided by l'Ordre des techniciens en radiologie du Québec.
3. Data is provided by the College of Medical Radiation Technologists of Ontario, and represents active registered members only.
4. Data includes Full Practice and Limited Practice members.

Table MRT-2. Number of Active Registered Medical Radiation Technologists, per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	45.5	46.4	48.0	47.0	48.2	48.2	48.5	48.8	52.3	52.3
P.E.I.	51.9	47.6	48.0	47.6	46.8	49.5	49.2	48.4	48.1	49.9
N.S.	57.5	56.5	56.2	53.4	55.0	55.2	53.8	53.2	52.6	54.7
N.B.	54.2	56.7	58.9	59.9	59.0	60.3	60.6	60.9	61.3	62.8
Que.	50.2	50.9	51.4	50.6	48.9	48.6	48.9	49.7	49.5	49.8
Ont.	50.4	49.6	48.8	47.1	45.9	46.0	45.4	45.1	45.0	45.2
Man.	55.2	56.8	58.1	57.3	54.2	54.3	52.0	51.1	50.6	51.5
Sask.	40.1	42.1	41.1	41.0	40.5	40.9	41.0	43.0	44.4	44.7
Alta.	52.6	50.1	49.0	46.8	46.1	46.9	46.4	48.0	49.1	48.9
B.C.	*41.2*	*41.4*	*41.0*	*40.9*	*41.7*	*40.5*	*40.3*	*40.8*	*40.6*	*40.4*
Y.T. & N.W.T.	..	..	..	..	..	..	..	..	..	..
Canada	***49.5***	***49.2***	***49.0***	***47.8***	***46.9***	***46.8***	***46.5***	***46.8***	***46.9***	***47.1***

Source: HPDB/CIHI

Notes

.. Information not available.

See Table MRT-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratio in Table MRT-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Table MRT-3. Number of Registered Medical Radiation Technologists[1] by Province/Territory, Canada, 1993–2002*

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	263	265	271	262	265	262	262	262	280	282
P.E.I.	70	65	66	66	65	71	70	68	71	73
N.S.	540	532	530	506	524	518	510	503	497	518
N.B.	410	429	446	454	447	464	468	469	470	483
Que.[2]	3,606	3,678	3,730	3,685	3,577	3,569	3,604	3,679	3,679	3,714
Ont.[3]	5,423	5,396	5,384	5,260	5,197	5,257	5,263	5,306	5,388	5,476
Man.	620	640	658	652	617	630	610	601	595	601
Sask.	405	427	419	419	414	420	421	440	454	454
Alta.	1,416	1,363	1,353	1,315	1,324	1,380	1,385	1,456	1,515	1,528
B.C.	*1,502*	*1,557*	*1,582*	*1,613*	*1,668*	*1,668*	*1,681*	*1,715*	*1,728*	*1,734*
Y.T. & N.W.T.	..	..	..	..	..	..	..	..	..	..
Canada	***14,255***	***14,352***	***14,439***	***14,232***	***14,098***	***14,239***	***14,274***	***14,499***	***14,677***	***14,863***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized* cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). In the HPDB, registered represents the number of Medical Radiation Technologists subject to: mandatory registration with a provincial regulatory authority (i.e. Ontario and Quebec); mandatory registration with the CAMRT (all other provinces except Ontario, Quebec and British Columbia); or voluntary membership data in the case of British Columbia (not regulated).

.. Information not available.

1. Membership in Quebec refers to l'Ordre des techniciens en radiologie du Québec; membership for the rest of Canada refers to the Canadian Association of Medical Radiation Technologists.
2. Data is provided by l'Ordre des techniciens en radiologie du Québec.
3. Data is provided by the College of Medical Radiation Technologists of Ontario, and represents active registered members only.

Table MRT-4. Number of Registered Medical Radiation Technologists in the Discipline of Radiography/Radiological Technology by Province/Territory, Canada, 1993–2002*

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	239	240	245	235	236	235	234	237	249	251
P.E.I.	67	62	63	64	62	67	63	60	64	62
N.S.	457	446	432	414	428	411	405	399	383	391
N.B.	368	378	388	393	382	399	403	398	393	409
Que.[3]	..	..	..	..	..	..	..	..	2,991	2,999
Ont.[1]	4,594 [2]	4,346	4,319	4,198	4,118	4,158	4,133	4,136	4,163	4,202
Man.	548	567	580	570	537	543	530	526	509	511
Sask.	351	368	360	355	356	356	356	369	377	369
Alta.	1,204	1,142	1,128	1,093	1,101	1,151	1,153	1,187	1,208	1,226
B.C.	*1,258*	*1,292*	*1,298*	*1,315*	*1,350*	*1,337*	*1,319*	*1,352*	*1,316*	*1,290*
Canada	***9,086***	***8,841***	***8,813***	***8,637***	***8,570***	***8,657***	***8,596***	***8,664***	***11,653***	***11,710***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized* cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). In the HPDB, registered represents the number of Medical Radiation Technologists subject to: mandatory registration with a provincial regulatory authority (i.e. Ontario and Quebec); mandatory registration with the CAMRT (all other provinces except Ontario, Quebec and British Columbia); or voluntary membership data in the case of British Columbia (not regulated).

.. Information not available.

Members qualifying in other disciplines are counted in other disciplines.

1. Ontario data represent active registered members of the College of Medical Radiation Technologists of Ontario
2. The 1993 data were generated by the Board of Radiological Technicians and include other members other than "active". Therefore, the data are not comparable with data after 1993.
3. Quebec data represent active registered members of the Ordre des technologues en radiologie du Québec.

Table MRT-5. Number of Registered Medical Radiation Technologists in the Discipline of Nuclear Medicine by Province/Territory of Residence, Canada, 1993–2002*

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	14	15	17	15	16	15	15	14	16	13
P.E.I.	3	3	3	2	3	4	5	5	5	6
N.S.	63	63	70	65	66	68	64	62	63	73
N.B.	26	29	32	34	36	36	38	42	43	47
Que.[3]	..	..	..	..	..	..	..	..	395	403
Ont.[1]	525 [2]	577	572	593	593	604	604	615	638	647
Man.	45	44	45	44	44	46	47	45	44	45
Sask.	26	27	27	29	25	27	32	30	33	35
Alta.	125	126	124	120	117	125	121	140	142	151
B.C.	*153*	*171*	*169*	*171*	*178*	*181*	*180*	*186*	*191*	*192*
Y.T. & N.W.T.	..	..	..	..	..	..	..	..	..	..
Canada	***980***	***1,055***	***1,059***	***1,073***	***1,078***	***1,106***	***1,106***	***1,139***	***1,570***	***1,612***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized* cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). In the HPDB, registered represents the number of Medical Radiation Technologists subject to: mandatory registration with a provincial regulatory authority (i.e. Ontario and Quebec); mandatory registration with the CAMRT (all other provinces except Ontario, Quebec and British Columbia); or voluntary membership data in the case of British Columbia (not regulated).

.. Information not available.

Members qualifying in other disciplines are counted in other disciplines.

1. Ontario data represent active registered members of the College of Medical Radiation Technologists of Ontario.
2. The 1993 data were generated by the Board of Radiological Technicians and include other members other than "active". Therefore, the data are not comparable with data after 1993.
3. Quebec data represent active registered members of the Ordre des technologues en radiologie du Québec.

Table MRT-6. Number of Medical Radiation Technologist Graduates[1] who became Certificants, by Province, Canada, 1993–2002*

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	10	11	12	16	14	10	13	13	15	19
P.E.I.	6	0	6	0	1	6	0	0	6	6
N.S.	26	25	20	22	11	11	7	10	7	21
N.B.	21	23	15	13	15	10	9	22	26	34
Que.[2]	154	151	189	165	144	153	96	110	133	*127* [4]
Ont.	249	257	223	199	244	253	218	189	246	239
Man.	29	31	27	32	28	8	23	22	28	35
Sask.	26	23	22	22	20	13	18	8	21	33
Alta.	73	62	55	64	45	40	45	52	69	87
B.C.	58	66	61	51	61	57	66	72	71	77
N.P.[3]	0	0	0	0	0	0	10	77	39	49
Canada	**652**	**649**	**630**	**584**	**583**	**561**	**505**	**575**	**661**	**727**

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, italicized cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). In the HPDB, registered represents the number of Medical Radiation Technologists subject to: mandatory registration with a provincial regulatory authority (i.e. Ontario and Quebec); mandatory registration with the CAMRT (all other provinces except Ontario, Quebec and British Columbia); or voluntary membership data in the case of British Columbia (not regulated).

.. Information not available.

1. May include graduates from Magnetic Resonance, Nuclear Medicine, Radiation Therapy, and Radiological Technology.
2. Quebec data for 1993–2001 from OTRQ.
3. N.P. denotes non-provincial candidates that may reside in the territories or out of country.
4. CIHI Estimate.

Endnotes

Sources

Figure MRT-1. Calculated from data in Table MRT-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure MRT-2. Calculated from data in Table MRT-2.

Table MRT-1. Canadian Association of Medical Radiation Technologists and Ordre des technologues en radiologie du Québec, and the College of Medical Radiation Technologists of Ontario.

Table MRT-2. Data calculated based on Table MRT-1 and population estimates from Statistics Canada shown in Appendix C.

Table MRT-3. 1993–2002: Canadian Association of Medical Radiation Technologists, Ordre des technologues en radiologie du Québec.

Table MRT-4. Canadian Association of Medical Radiation Technologists

Table MRT-5. Canadian Association of Medical Radiation Technologists

Table MRT-6. Canadian Association of Medical Radiation Technologists

Midwives

Definition

Midwives are independent practitioners who provide a complete range of care to women and their babies during pregnancy, labour, birth, and the post-natal period.

Responsibilities/Activities

A midwife provides supervision, care and advice to women during pregnancy, labour and the postpartum period, this includes conducting deliveries on her own responsibility and to caring for the newborn and the infant. This care includes preventative measures, the detection of abnormal conditions in mother and child, the procurement of medical assistance and the execution of emergency measures in the absence of medical help. A midwife also has an important task in health counselling and education, not only for the women in their care, but also for the family and the community. This role often involves antenatal education and preparation for parenthood and extends to certain areas of gynecology, family planning, and childcare.

Practice Setting

A midwife may practice in hospitals, clinics, health units, birth centres, domiciliary conditions, or in any other service.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) and regulatory/licensing authorities (membership is a condition of employment) across Canada as the primary source of midwife data.

Secondary Data Source: Both Census and Labour Force Survey estimates are based on the 1991 Standard Occupational Classification D232 Midwives and Practitioners of Natural Healing.

Regulatory Environment

- The regulatory environment for midwives has witnessed considerable change over the period from 1993 to 2002, particularly in the past five years.
- In 1994, Ontario was the first province to have legislation passed which made registration with a provincial/territorial licensing authority a condition of employment as a midwife. Since that time four more provinces have become regulated, with the most recent being Manitoba in the year 2000 (at time of publication, the Northwest Territories is in the process of regulating midwifery).
- Although midwifery is regulated in five provinces, for many years unregulated personnel have practiced midwifery in Canada.
- Part of the consistent increase in the HPDB data, as shown in Figure Mid-1, may reflect changes in legislation rather than an actual increase in the number of midwives in the workforce.

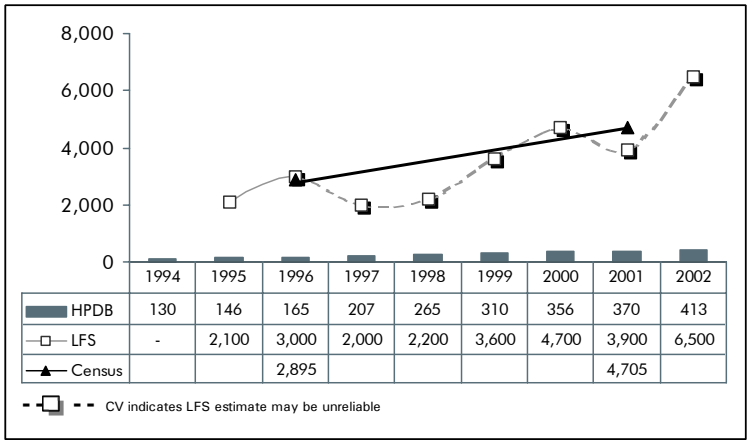
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	NR	NR	NR	NR	1999	1994	2000	NR	1998	1998	NR	NR	NR

NR = Not Regulated in 2002

Supply Trends

- Figure Mid-1 illustrates that during the common comparable years of 1996 and 2001, HPDB counts of active registered midwives increase 124.2% (this may reflect recent changes in the midwifery regulatory environment rather than an actual increase in personnel and comparisons at a national level using HPDB data may not be appropriate at this time). The Census estimates of employed midwives in the workplace in Canada increased 62.5% between the year 1996 and 2001, while LFS estimates increased 30.0% over the same period (please note that the coefficients of variation (CVs) indicated that LFS estimates are potentially useful but may contain a level of error that makes them unreliable—see Appendix D).
- Both the Census and the Labour Force Survey estimates are well above HPDB counts of active registered midwives. This may be due the fact that administrative data from HPDB reflects that registration with a regulatory/licensing authority has only recently become a condition of employment in five provinces in Canada. In provinces/territories without regulation, individuals with midwifery education/training from another jurisdiction or outside of Canada, or those who have no formal midwifery education/training, may report on surveys that they are employed midwives.
- The HPDB data presented in Figure Mid-1 and Table Mid-1 may undercount the number of personnel actively practicing midwifery in provinces/territories where regulation requiring licensure as a condition of employment is not in place.
- Table Mid-1 shows the distribution of midwives by province from 1993–2002. Of the five regulated provinces Ontario, Quebec, Manitoba, and British Columbia have experienced increases in the number of practicing midwives, based on each jurisdictions initial year of regulation. From 1994 to 2002 Ontario numbers have increased. Since becoming regulated in 1998, the number of active midwives in British Columbia has increased by 40.8%; in Quebec, the numbers increased by 10.9% since becoming regulated in 1999; while in Manitoba, the numbers increased by only 4.0% since regulation in 2000. The number of midwives regulated in Alberta has not changed from 1998 to 2002 (see Accessing Personnel for further details).

Figure Mid-1. Number of Midwives from Selected Data Sources, Canada, 1994–2002



	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	130	146	165	207	265	310	356	370	413
LFS	-	2,100	3,000	2,000	2,200	3,600	4,700	3,900	6,500
Census			2,895					4,705	

Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

Growth in Supply Relative to Population

- Data on midwives from HPDB provides an insufficient basis for comparison to the population at a national level. For certain provinces, for years in which regulation was in place, analyses may be possible.

Accessing Personnel**

- Women may schedule to see a midwife directly at conception or during the course of their pregnancy.
- Midwives are publicly funded in British Columbia, Manitoba, Ontario, and Quebec. Midwives in Alberta must charge women directly for their services. At the time of publication, the Canadian Association of Midwives (CAM) indicated that the number of midwives in Alberta has dramatically fallen in 2003 (please contact the Canadian Association of Midwives, www.canadianmidwives.org, for more details).

Factors That May Influence Demand for Personnel**

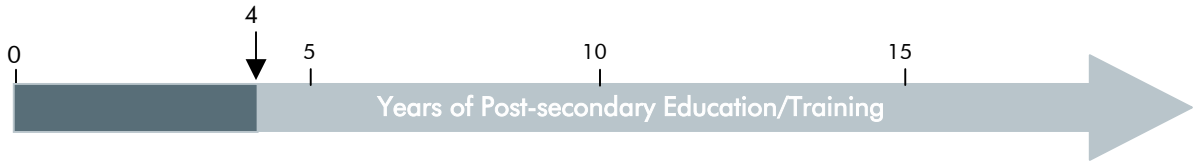
- The increased consumer awareness of midwifery.
- The decrease in physicians willing to provide obstetrical care.
- A growing body of evidence suggests positive outcomes for mother and newborn (e.g. lower intervention ratios and higher breastfeeding ratios).

What Else Do We Know?

- The average age of midwives increased from 43 to 44 years between 1996 and 2001 (Source: Census Data, Statistics Canada).
- The 2001 Census data indicates that three quarters of midwives in Canada were female (Source: Census Data, Statistics Canada). However, the Canadian Association of Midwives has indicated that almost all midwives are female.
- Table Mid-2 presents the number of graduates of programs for midwifery by school of graduation.

** Please note that the information in this section is adapted from a survey completed by the staff at the Canadian Association of Midwives (see Appendix B for the survey tool).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
4	Undergraduate Degree or Equivalent (British Columbia, Alberta, Quebec, Ontario).
Variable	Manitoba has a proviso for apprentice trained midwives.
For midwives educated outside Canada 1–2 years	Prior learning and Experience Assessment processes are available in British Columbia, Manitoba, and Quebec for foreign educated midwives. Ryerson University in Ontario offers the International Pre-Registration Program (IMPP) for foreign educated midwives.

Changes to Education and/or Training Requirements

- There are currently no expected changes to education and/or training requirements in provinces/territories in which midwifery is regulated or at the national level.
- In provinces/territories where midwifery is not regulated, the education required is neither specified nor known.

Possible Areas of Certified Specialization

- Currently there are not any areas of specialization.

What's Happening?

Listed are references to key research documents relating to midwives that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *Midwifery in Canada: An Environmental Scan of Professional Data*. Author: Jude Kornelson BC Centre of Excellence for Women's Health—Canadian Association of Midwives; 2003. CAM admin@canadianmidwives.org.

Research in Progress

1. Proposal submitted March 31, 2003 to Health and Human Resources Division, Health Canada, for further survey of Canadian Midwives. Contact Canadian Association of Midwives, admin@canadianmidwives.org or Kim Campbell at (604) 859-0777.

** Please note that the information in this section is adapted from a survey completed by the staff at the Canadian Association of Midwives (see Appendix B for the survey tool).

Data Tables

Table Mid-1. Number of Active Registered Midwives* by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	..	..	..	..	..	..	..	..	..	..
P.E.I.	*1*	*1*	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*1*
N.S.	..	..	..	..	*15*	..	..	*2*	*2*	*2*
N.B.	..	..	..	..	..	..	..	..	..	..
Que.[1]	..	*20* [7]	*35* [7]	*37* [7]	*38* [7]	*43* [7]	55	62	56	61
Ont.[2]	57	68	70	87	115	136	165	177	190	219
Man.[3]	*7* [7]	*7* [7]	*5* [7]	*5* [7]	*5* [7]	*7* [7]	*7* [7]	25	24	26
Sask.	*5*	*5*	*6*	*6*	*6*	*5*	*6*	*5*	*5* [9]	*5* [9]
Alta.[4]	*25*	*28*	*28*	*28*	*27*	*24*	*23*	*20*	*22*	*24*
B.C.[5]	..	..	..	..	..	49 [8]	53 [8]	61 [8]	65 [8]	69 [8]
Y.T.	..	..	..	..	..	..	..	*2*	*2*	*2*
N.W.T.[6]	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*4*	*4*
Canada	***96***	***130***	***146***	***165***	***207***	***265***	***310***	***356***	***370***	***413***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized cells* in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

As of 2002, five provinces are regulated: Ontario, Manitoba, British Columbia, Alberta, and Quebec.

.. Information not available.

1. Quebec 2001 data as of October 1; 2002 data as of September 7.
2. Ontario data as of January 1.
3. Manitoba data as of June 13; data from 2001 onwards is as of March 31 of the following year (i.e. 2001 data is as of March 31, 2002).
4. Alberta data as of April 30. Alberta Health and Wellness has indicated that the number of registered midwives in Alberta decreased significantly in 2003.
5. British Columbia data as of March 31.
6. Includes Nunavut count.
7. Estimate.
8. Includes conditional registrants.
9. Saskatchewan 2001–2002 data as of September.

Table Mid-2. Number of Graduates of Programs for Midwifery by School of Graduation, Canada, 1996–2002

	1996	1997	1998	1999	2000 [1]	2001	2002
School							
Laurentian University	5	6	10	5	1	2	7
McMaster University	6	10	11	11	1	8	18
Ryerson Polytechnic University	8	6	3	12	5	11	8
Canada	**19**	**22**	**24**	**28**	**7**	**21**	**33**

Source: HPDB/CIHI

Notes

A program has been started at Trois-Rivières.

The UBC program will graduate its first class of 10 per year in 2005.

Program changes may be occurring in Ontario and Manitoba; please contact CAM for further details.

1. Not many graduates in this year due to a change in the length of the program in 1998 from a 2-year to a 3-year program.

Endnotes

Sources

Figure Mid-1. Calculated from data in Table Mid-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Table Mid-1. Data provided by the Canadian Association of Midwives and from provincial associations; Newfoundland and Labrador Association of Midwives, Prince Edward Island Association of Midwives, Association of Nova Scotia Midwives, Midwives Association of New Brunswick, L'Ordre de sage-femmes, College of Midwives of Ontario, College of Midwives of Manitoba, Midwives Association of Saskatchewan, Midwifery Alberta Health and Wellness, College of Midwives of British Columbia.

Table Mid-2. Individual universities.

Occupational Therapists

Definition

Occupational therapists promote healthy patterns of occupation with people of all ages and levels of abilities. Occupation refers to the activities of daily life that have value and meaning to the individual. These include self-care activities, paid or volunteer work, studies and leisure pursuits. Clients may be individuals or groups of all ages and varying abilities that experience occupational disruption, even occupational deprivation arising from health risks and/or medical conditions, transitional difficulties or environmental barriers.

Responsibilities/Activities

Occupational therapists utilize a systematic approach based on evidence and professional reasoning to enable individuals, groups and communities to develop the means and opportunities to identify, engage in, and improve their function in the occupations of life. Occupational therapists use a process involving assessment, intervention and evaluation of progress of the client related to their occupational performance in self-care, work, study, volunteerism and leisure. Occupational therapists may advise on health risks in the workplace, mental health promotion programs, and active living programs for seniors.

Occupational therapists deliver direct professional services but may also perform functions as manager, researcher, program developer or educator.

Practice Setting

Occupational therapists are generally employed in community agencies, health care organizations such as hospitals, chronic care facilities, rehabilitation centres, and clinics; schools, social agencies, industry or are self-employed. Some occupational therapists specialize in working with a specific age group, or with clients who have a specific disability such as arthritis, mental health problems or spinal cord injuries.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) and regulatory/licensing authorities (membership is a condition of employment) across Canada as the primary source of occupational therapist data.

Secondary Data Source: This publication utilizes additional data from two survey sources (Labour Force Survey/Statistics Canada and Census/Statistics Canada). Both Census and LFS estimates are based on the Standard Occupational Classification D043 Occupational Therapists.

Regulatory Environment

- As of the year 2000, all provinces had legislation that requires registration with a provincial licensing authority as a condition of employment.
- As a result, part of the increase in numbers of occupational therapists, as shown in Figure OT-1, may reflect changes in legislation rather than an actual increase in the numbers in the workforce.

	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1987	1974*	unknown	1997	1973	1993	1971	1971	1990	2000	..	..	..

.. Information not available.

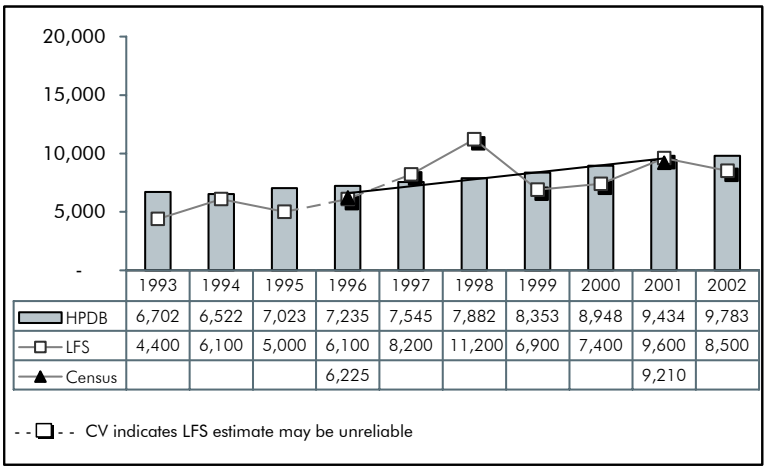
* COTNS 1996—previous NSAOT

Supply Trends

- During the common comparable years of 1996 and 2001, HPDB counts of active registered occupational therapists increased 30.4%, the Census estimates of employed occupational therapists in the workplace in Canada increased 48.0%, and the Labour Force Survey (LFS) estimates increased 57.4%.
- Census estimates of active registered occupational therapists in the workplace in Canada were lower than HPDB in both years: 14.2% lower than HPDB counts in 1996 and 2.4% lower in 2001. LFS estimates were 15.7% lower in 1996 and 1.8% higher in 2001. LFS estimates did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002.

- As shown in Figure OT-1, the number of active registered occupational therapists, as indicated in the HPDB, has increased steadily from 1993 to 2002. This represents a 45.9% increase in the number of occupational therapists over this ten-year period.
- Table OT-1 shows the distribution of active occupational therapists by province from 1993 to 2002. Provincially, there were significant percentage increases over this ten-year period in Quebec (76.4%), Newfoundland and Labrador (76.3%), and Saskatchewan (72.6%).

Figure OT-1. Number of Occupational Therapists from Selected Data Sources, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	6,702	6,522	7,023	7,235	7,545	7,882	8,353	8,948	9,434	9,783
LFS	4,400	6,100	5,000	6,100	8,200	11,200	6,900	7,400	9,600	8,500
Census				6,225					9,210	

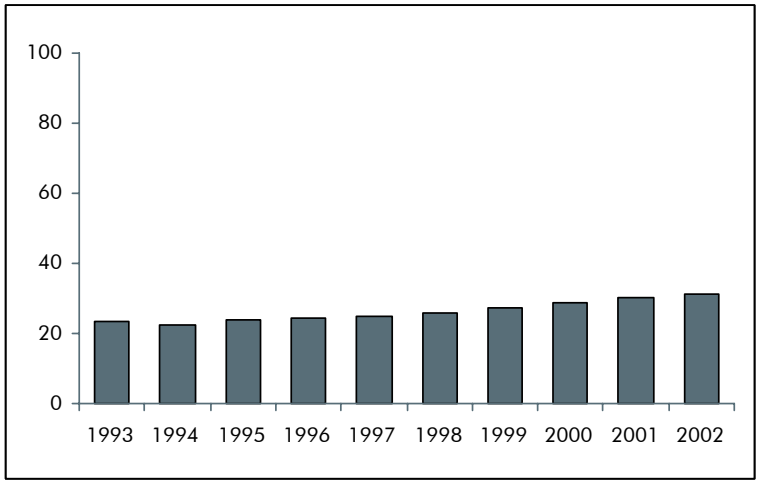
- -❑- - CV indicates LFS estimate may be unreliable

Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

Growth in Supply Relative to Population

- The rate of increase of occupational therapists (as reported in HPDB) has been greater than the population growth rate, resulting in a greater number of occupational therapists per 100,000 population across Canada. The number of occupational therapists per 100,000 population in Canada increased 34.1% from 23.2 in 1993 to 31.1 in 2002 (see Figure OT-2). Over this same time period the Canadian population increased by 9.1%.
- Table OT-2 shows in 2002 the greatest number of occupational therapists per 100,000 population were in Quebec (36.8), Alberta (32.0), and Manitoba (31.3). These three provinces were the only ones that had the number of active occupational therapists per 100,000 population above the Canadian ratio; the remainder of the provinces were the same or below.
- As noted earlier, the apparent increase in the number of occupational therapists relative to the population, may reflect changes in legislation rather than an actual increase in the number of occupational therapists.

Figure OT-2. Number of Active Registered* Occupational Therapists per 100,000 Population, Canada, 1993–2002



Source: HPDB/CIHI

* This data includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

Accessing Personnel**

- A referral is not required to access an occupational therapist.
- Occupational therapists may work within the context of a publicly funded multidisciplinary health care team and have specific functions on the team.
- Alternatively, occupational therapists may work independently, responding to requests from other health professions; requests from schools; requests from industry; automobile insurers, third party insurers such as worker compensation boards; and self-payors.

Factors That May Influence Demand for Personnel**

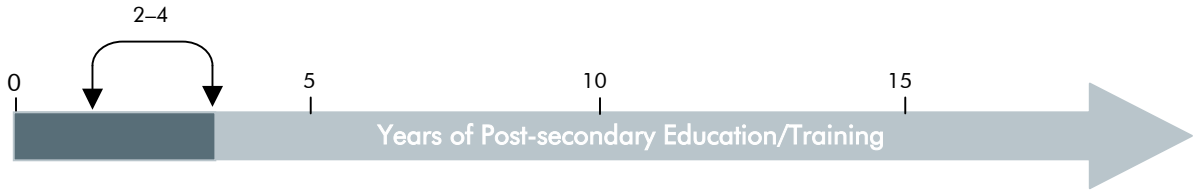
- Aging population that requires more community based services to maintain their automomy to remain living at home.
- Interest by federal and provincial government to advance primary health care services that deliver core health services, health promotion, and prevention of disease and injury.
- Increasing evidence that occupational therapy services offer cost-effective quality services that have a positive impact on health.
- Interest by private sector that occupational therapy intervention in disability management can have a positive impact on return to work ratios of injured workers and cost control.

What Else Do We Know?

- The average age of occupational therapists increased from 34 to 36 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- In 2001, the majority (90%) of occupational therapists were female (Source: Census Data, Statistics Canada).

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Association of Occupational Therapists (see Appendix B for the survey tool).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
2–4 years depending on the program and its prerequisites	Currently the minimum educational requirement is the Bachelor of Science Degree in Occupational Therapy.
	1000 hours of fieldwork experience.
	Successful completion of the National Certification Examination (except in Quebec, Manitoba, Saskatchewan). To be registered in all provinces of Canada, all applicants must be graduates of university educational programs that are accredited by the Canadian Association of Occupational Therapists (CAOT).

- All Canadian university programs are moving towards Master's level entry degrees, although some programs are already offering advanced degree programs. For more detailed information, please go to http://www.caot.ca/pdfs/programprereqs.pdf.

Changes to Education and/or Training Requirements

- The CAOT has indicated that a Master's degree will be the minimum entry requirement to the profession in Canada by the year 2010. Effective in 2008, CAOT will only grant academic accreditation to those occupational therapy educational programs that lead to a professional Master's degree in occupational therapy as the entry credential.

Possible Areas of Certified Specialization

- There are no areas of certified specialization at this time.

What's Happening?

Listed are references to key research documents relating to occupational therapists that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. Canadian Association of Occupational Therapists, Dietitians Canada Association, Canadian Nurses Association, Canadian Physiotherapy Association (1995) *Integrated health human resources development: Pragmatism or pie in the sky*. Ottawa; ON. Available from the Canadian Nurses Association.
2. Canadian Association of Occupational Therapists (2002) *Profile of occupational therapy practice in Canada*. http://www.caot.ca/default.asp?pageID=36
3. Canadian Association of Occupational Therapists (2003) *Background paper on occupational therapy human resource data: Sources, utilization, and interpretative capacity*. Ottawa: ON.
4. Canadian Association of Occupational Therapists (2003). *CAOT Guidelines for the Supervision of Assigned Occupational Therapy Service Components* http://www.caot.ca/index.cfm?ChangeID=1&pageID=579.
5. Canadian Association of Occupational Therapists (2003). *Project Summary Report on the Profile of performance expectations for Canadian support personnel in occupational therapy*. http://www.caot.ca/pdfs/Project%20Summary%20Report.pdf
6. Canadian Association of Occupational Therapists (2003). *Position statement on support Personnel in occupational therapy*. http://www.caot.ca/default.asp?ChangeID=170&pageID=161.
7. Ordre des ergothérapeutes du Québec (2003). *La scolarité utile à l'exercice de la profession Ergothérapeute au Québec: résultat d'une analyse documentaire*. Montréal, Québec.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Association of Occupational Therapists (see Appendix B for the survey tool).

Research in Progress

1. Canadian Association of Occupational Therapists (2003). *Entry level Education in Canada…the change to a professional master's degree by 2008*. Contact Donna Klaiman dklaiman@caot Tel. (613) 523-2268 ext. 229.
2. Canadian Association of Occupational Therapists/ Health Canada. *Development of a Working Group on Occupational Therapy Human Resource Planning*. Contact Donna Klaiman dklaiman@caot Tel. (613) 523-2268 ext. 229.
3. University of British Columbia, Canadian Association of Occupational Therapists, Canadian Physiotherapy Association. *Changes in entry level education of occupational therapists and physiotherapists in Canada: Impact on practice*. Letter of intent submitted, November 2003. Contact Donna Klaiman dklaiman@caot Tel. (613) 523-2268 ext. 229.
4. Consortium of Health Professions. *Enhancing interdisciplinary collaboration in primary health care: A change process to support collaborative practice*. Proposal submitted to Health Canada, November 2003. Contact Donna Klaiman dklaiman@caot Tel. (613) 523-2268 ext. 229.
5. Consortium of Health Professions. *Enhancing interdisciplinary collaboration in mental health*. Proposal submitted to Health Canada Fall 2003. Contact Darene Toal-Sullivan dtaolsullivan@caot Tel. (613) 523-2268 ext. 237.

Data Tables

Table OT-1. Number of Active Registered Occupational Therapists by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.[4]	80	81	92	103	108	111	136	137	137	141
P.E.I.[5]	*29* [2]	*33* [2]	*36* [2]	31	27	26	30	34	35	38
N.S.[6]	*173* [2]	*194* [2]	*215* [2]	172	185	187	219	214	239	255
N.B.	*129*	*144*	*136*	*147*	170	169	198	208	204	201
Que.[7]	1,558	1,666	1,821	1,968	2,087	2,192	2,348	2,487	2,618	2,749
Ont.[8]	*2,802* [2]	2,400 [1]	2,641	2,668	2,754	2,854	2,997	3,196	3,375	3,540
Man.[3]	245	250	253	281	283	290	321	345	363	360
Sask.[9]	117	121	136	146	168	183	184	203	201	202
Alta.[10]	635	659	660	674	707	722	787	874	945	1,000
B.C.[11]	*921*	*960*	*1,015*	*1,029*	*1,040*	*1,129*	*1,114*	1,234	1,299	1,275
Y.T.	*6*	*6*	*9*	*8*	*7*	*9*	*10*	*9*	*9*	*12*
N.W.T.	*7*	*8*	*9*	*8*	*9*	*10*	*9*	*7*	*9* [2]	*10*
Canada	***6,702***	***6,522***	***7,023***	***7,235***	***7,545***	***7,882***	***8,353***	***8,948***	***9,434***	***9,783***

Source: HPDB/CIHI

Notes

This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized* cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

1. Estimate.
2. CIHI estimate.
3. Manitoba 1993–2002 data provided by the AOTM and represent employed active registered; 1993–1994 data as of February 1; 1995 data as of June 1; 1996–1997 data as of April 1; 1998–2000 data as of June 1; 2001–2002 data as of April 1.
4. Newfoundland and Labrador 1998 data as of February 28, 1999; 1999 data as of February 28, 2000; 2000 data as of February 28, 2001 Newfoundland and Labrador.
5. Prince Edward Island 1996 data as of June 30; 1997–2002 as of April 30.
6. Nova Scotia 1998 data as of September; 1999 data as of December; 2000 data as of May; 2001 data as of February 15; 2002 data as of September 19.
7. Quebec are registered members; data as of March 31 of the following year.
8. Ontario 1993–1995 data are registered members; 1995–2000 data as of July 1; 2001–2002 data as of June 30.
9. Saskatchewan data as of July 31.
10. Alberta 1993–1998 data as of January 31; 1999–2002 as of June 30.
11. Prior to July 1, 2000, British Columbia memberships were voluntary. British Columbia data for 1998 and 1999 are from the Centre for Health Services and Policy Research. 2000 figures are from the College of Occupational Therapists of British Columbia, which began registry on July 2000. 2000–2001 data as of June 30 the next year; 2002 data as of February 28, 2003.

Table OT-2. Number of Active Registered Occupational Therapists per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	13.9	14.2	16.3	18.5	19.6	20.4	25.2	25.5	25.7	26.5
P.E.I.	22.0	24.4	26.6	22.7	19.7	18.9	21.7	24.6	25.1	27.1
N.S.	18.7	20.9	23.1	18.4	19.8	19.9	23.2	22.7	25.3	27.0
N.B.	17.2	19.2	18.1	19.5	22.5	22.4	26.2	27.5	27.0	26.6
Que.	21.7	23.1	25.1	27.0	28.5	29.9	31.9	33.6	35.2	36.8
Ont.	26.1	22.0	23.9	23.9	24.3	25.0	25.8	27.1	28.2	29.2
Man.	21.9	22.2	22.4	24.8	24.9	25.5	28.1	30.1	31.6	31.3
Sask.	11.6	12.0	13.4	14.3	16.4	17.8	18.0	19.9	19.8	20.0
Alta.	23.6	24.2	23.9	24.0	24.7	24.6	26.4	28.8	30.6	32.0
B.C.	25.4	25.7	26.5	26.2	26.1	28.1	27.5	30.3	31.5	30.7
Y.T.	20.0	19.8	28.6	24.9	21.9	29.0	32.6	29.8	29.9	40.3
N.W.T.	17.3	19.4	21.6	19.2	21.7	24.4	22.0	17.1	21.9	24.1
Canada	**23.2**	**22.4**	**23.8**	**24.3**	**25.1**	**26.0**	**27.3**	**29.0**	**30.2**	**31.1**

Source: HPDB/CIHI

Note

See Table OT-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratio in Table OT-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Table OT-3. Number of Graduates of B.Sc. and M.Sc. Programs for Occupational Therapy, by School of Graduation, Canada, 1993–2002

School	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.S.										
Dalhousie University	32	35	35	35	36	36	44	50	45	48
Que.	**173**	**191**	**200**	**194**	**200**	**130**	**176**	**165**	**185**	**111**
McGill University	51	64	75	56	69	54	56	47	48	46
Université de Montréal	63	73	73	74	75	64	69	65	68	..
Université Laval	59	54	52	64	56	12 [3]	51	53	69	65
Ont.	**166**	**201**	**215**	**233**	**267**	**233**	**223**	**233**	**230**	**238**
University of Ottawa	18	32	22	28	20	33	21	33	28	42
Queen's University	33	41	32	38	36	35	37	36	34	42
University of Toronto	51	49	63	67	104	63	63	62	67	**59**
McMaster University	30	31	56	54	64	58	57	59	57	50
University of Western Ontario	34	48	42	46	43	44	45	43	44	45
Man.										
University of Manitoba	30	26	31	30	29	29	31	30	27	30
Alta.										
University of Alberta	64 [1]	80 [2]	75	75	77	70	76	69	78	73
B.C.										
University of British Columbia	30	34	34	37	31	34	39	37	36	..
Canada	**495**	**567**	**590**	**604**	**640**	**532**	**589**	**584**	**601**	**500**

Source: HPDB/CIHI

Notes

.. Information not available.
1. Increased student intake quota.
2. Saskatchewan Agreement quota increased; figure also includes students under the CIDA/Indonesian Grant.
3. First graduating class from the new 3.5 year program.

Endnotes

Sources

Figure OT-1. Calculated from data in Table OT-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure OT-2. Calculated from data in Table OT-2.

Table OT-1. Data supplied by provincial associations (Newfoundland and Labrador Occupational Therapy Board, Prince Edward Island Occupational Therapist Registration Board, College of Occupational Therapists of Nova Scotia, New Brunswick Association of Occupational Therapists, Ordre des ergothérapeutes du Québec, College of Occupational Therapists of Ontario, Association of Occupational Therapists of Manitoba, Saskatchewan Society of Occupational Therapists, Alberta Association of Registered Occupational Therapists, College of Occupational Therapists of British Columbia, Association of Yukon Occupational Therapists, and Northwest Territories Occupational Therapists Association).

Table OT-2. Data calculated based on Table OT-1 and population estimates from Statistics Canada shown in Appendix C.

Table OT-3. Data provided by individual universities (Dalhousie University, McGill University, Université de Montréal, Université Laval, University of Ottawa, Queen's University, University of Toronto, McMaster University, University of Western Ontario, University of Manitoba, University of Alberta, University of British Columbia).

Optometrists

Definition

Optometrists examine patients' eyes and prescribe treatment when there is a problem.

Responsibilities/Activities

The duties of an optometrist include: diagnosing the presence of vision problems, eye disease or other abnormal conditions by using special tests and instruments; prescribing treatment (excluding surgery) to conserve, improve and correct vision and other ocular disorders; prescribing and fitting eyeglasses and contact lenses; counselling patients on contact lens use and care, visual hygiene, lighting arrangements, working distances and safety factors. Optometrists frequently serve as the entry point into the eye health care system. As the first point of contact for the identification and diagnosis of eye disease, they routinely encounter conditions that require secondary or tertiary care. Optometrists regularly refer and consult with other providers, most prominently ophthalmologists, surgeons and family physicians. Optometrists may prescribe eye medications to treat eye diseases in provinces where there is enabling legislation. Some optometrists have special interests in areas such as fitting visual aids for people with low vision, children's and sports vision and other areas of correcting special vision problems.

Practice Setting

Optometrists work in private practice and in clinics and community health centres.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from the regulatory/licensing authorities across Canada as the primary source of optometrist data.

Secondary Data Source: Both Census and Labour Force Survey estimates are based on the 1991 Standard Occupational Classification D021 Optometrists.

Regulatory Environment

- Since the 1920's, optometry has been regulated in all provinces in Canada. In the Territories, the territorial governments register/license optometrists.

	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1928	1922	1921	1921	1909	1919	1909	1908/ 1909	1920	1923	1959	1988	REG

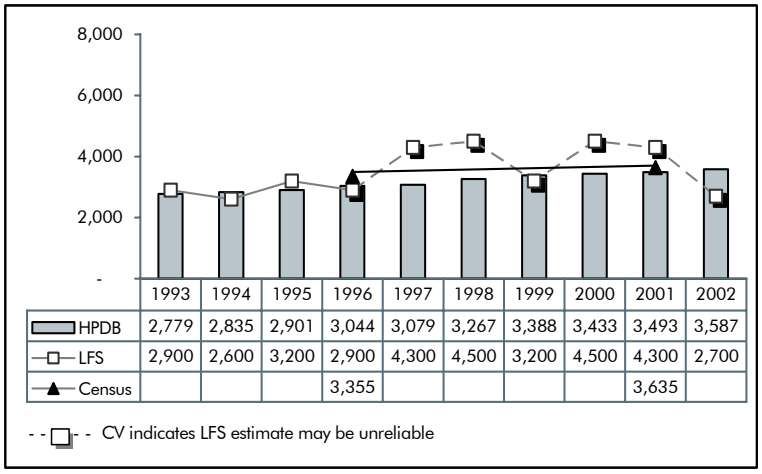
REG = Regulated in 2002 but initial year of regulation is unknown.

Supply Trends

- As illustrated in Figure Opt-1, during the common comparable years of 1996 and 2001, HPDB counts of active registered optometrists increased 14.7%, the Census estimates of employed optometrists in the workplace in Canada increased 8.3% and the Labour Force Survey (LFS) estimates increased 48.3% period.
- Census estimates of employed optometrists in the workplace in Canada were higher than HPDB in both years: 10.2% higher than HPDB counts in 1996 and 4.1% higher in 2001. LFS estimates were 4.7% lower than HPDB counts in 1996 and 23.1% higher in 2001. LFS estimates did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002 (please note that the coefficients of variation indicated that LFS estimates are potentially useful but may contain a level of error that makes them unreliable—see Appendix D).

M

Figure Opt-1. Number of Optometrists from Selected Data Sources, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	2,779	2,835	2,901	3,044	3,079	3,267	3,388	3,433	3,493	3,587
LFS	2,900	2,600	3,200	2,900	4,300	4,500	3,200	4,500	4,300	2,700
Census				3,355					3,635	

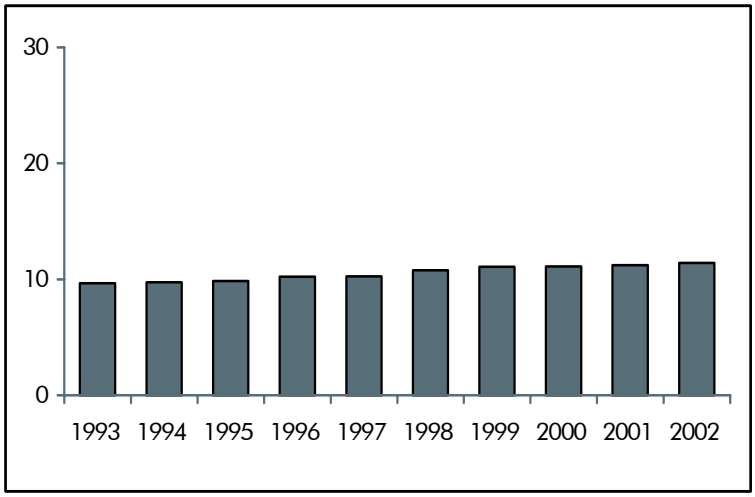
Sources: HPDB/CIHI, LFS/Statistics Canada,Census/Statistics Canada

- The HPDB data presented in Figure Opt-1 and Table Opt-1 demonstrate that the number of active registered optometrists increased steadily from 1993 to 2002. This represents a 29.1% increase in the number of active registered optometrists over this ten-year period.
- Tables Opt-1 and Opt-3 show the distribution of active registered and registered optometrists, respectively, by province from 1993 to 2002. Provincially, the largest percentage increases over this ten-year period, in the number of registered optometrists, have occurred in British Columbia (52.0%), Alberta (43.0%), and Ontario (29.2%).

Growth in Supply Relative to Population

- The rate of increase of active registered optometrists, as reported in the HPDB, has been greater than the population growth rate, resulting in a higher number of optometrists per 100,000 population in Canada. The number of optometrists per 100,000 population in Canada increased 18.8% from 9.6 in 1993 to 11.4 in 2002 (see Figure Opt-2). Over this same time period the Canadian population increased by 9.1%.

Figure Opt-2. Number of Active Registered, Optometrists per 100,000 Population, Canada, 1993–2002



Source: HPDB/CIHI

- Table Opt-2 shows in 2002 the highest number of active registered optometrists per 100,000 population was in Quebec (16.0) and New Brunswick (12.4). These two provinces were the only ones that had optometrists per 100,000 population above the Canadian ratio; the remainder of the provinces were the same or below. The province with the lowest per 100,000 population was Newfoundland and Labrador (6.8).

Accessing Personnel**

- Referrals from another health care professional are not typically required in order to access the services offered by optometrists.
- The primary drivers for optometrist services are:
  - Self referral by a patient;
  - Referral from physician, nurse, etc; and
  - Recall notice from optometric practice.

Factors That May Influence Demand for Personnel**

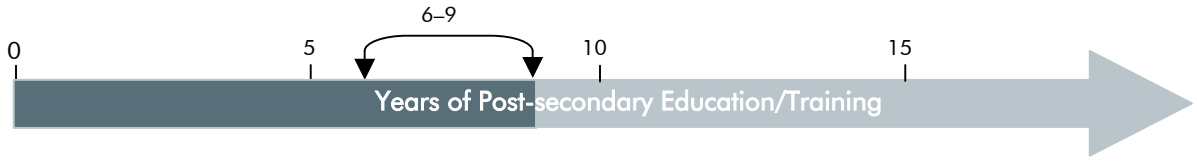
- The combination of an aging Canadian population, the advent of new, sophisticated eye health treatments and procedures and knowledgeable health care consumers will place considerable strain on the provision of eye health care services in Canada.
- Other factors that may influence demand include increased scope of practice for optometrists and a shortage of ophthalmologists available for secondary and tertiary eye care.

What Else Do We Know?

- The average age of optometrists fluctuated around 40 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- As of 2001, just over half (55%) of those in the optometrist profession are male (Source: Census Data, Statistics Canada).
- The number of graduates of optometry programs is presented in Table Opt-4.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Association of Optometrists (see Appendix B for the survey tool).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
2–4	Undergraduate training
4	Doctor of Optometry Program
4.5–5	Doctor of Optometry Program (University of Waterloo)
5	Doctor of Optometry Program (University of Montreal)

Changes to Education and/or Training Requirements

- There are no anticipated changes in the requirements to practice at this time.

Possible Areas of Certified Specialization

- Certification for use of therapeutic pharmaceutical agents in some provinces.

What's Happening?

- The Canadian Association of Optometrists is attempting to coordinate human resource research given that the Optometry profession faces several key supply, demand, training and certification issues. There has not been any national human resource research related to optometrists completed in Canada in the past 15–20 years.

Data Tables

Table Opt-1. Number of Active Registered Optometrists by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	32	32	34	34	36	35	33	33	35	36
P.E.I.	11	11	11	11	10	11	13	11	*12* [1]	14
N.S.	67	66	66	68	68	69	77	70	74	78
N.B.	*80* [1]	*81* [1]	*83* [1]	*85* [1]	88	89	92	92	94	94
Que.	*1,048* [1]	*1,067* [1]	*1,086* [1]	1,119	1,057	1,176	1,186	1,198	*1,163* [1]	1,198 [4]
Ont.	885	914	941	1,001	1,050	1,082	1,130	1,178	1,218	1,258
Man.[7]	80	79	80	80	78	80	83	89	92	89
Sask.	98	101	106	110	108	111	111	109	*109* [1]	107
Alta.	*219* [1]	*222* [1]	*226* [1]	*232* [1]	261	273	303	310	325 [2]	339 [2]
B.C.	*253* [1]	*257* [1]	*262* [1]	298	316	335	355	338	367	369 [6]
Y.T.[3]	6	5	5	5	5	4	4	4	4	5
N.W.T.[5]	0	0	1	1	2	2	1	1	0	0
Canada	*2,779*	*2,835*	*2,901*	*3,044*	3,079	3,267	3,388	3,433	*3,493*	3,587

Source: HPDB/CIHI

Notes

Italics indicate that the cell contents represent, in part (e.g. a Canada total) or entirely, estimated data (superscript notes included with estimates identify the source of the estimate i.e. CIHI or data provider). See additional notes below.

1. CIHI estimate.
2. 2001 Alberta data as of September 5; 2002 data as of August 28.
3. 1993–2000 Yukon data as of March; 2001 data as of February 14; 2002 data as of November 14.
4. 2002 Quebec data as November 14.
5. In the Northwest Territories Ophthalmologists are responsible for the bulk of eye care. For primary eye care, much of this is delegated by the Ophthalmologist to Ophthalmic Medical Assistants, who under supervision, provide refraction services and prescribe for eye glasses. Ophthalmologists are funded and supported by the territorial health plan, whereas optometrists are not.
6. British Columbia 2002 data as of October 31, 2002.
7. Manitoba data from 1995–2002 as of June.

Table Opt-2. Number of Active Registered Optometrists per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	5.5	5.6	6.0	6.1	6.5	6.4	6.1	6.2	6.6	6.8
P.E.I.	8.3	8.2	8.1	8.1	7.3	8.0	9.4	7.9	8.6	10.0
N.S.	7.2	7.1	7.1	7.3	7.3	7.4	8.2	7.4	7.8	8.3
N.B.	*10.7*	*10.8*	*11.0*	*11.3*	*11.6*	*11.8*	*12.2*	*12.2*	*12.4*	*12.4*
Que.	*14.6*	*14.8*	*15.0*	*15.4*	*14.5*	*16.0*	*16.1*	*16.2*	*15.6*	*16.0*
Ont.	8.2	8.4	8.5	9.0	9.3	9.5	9.7	10.0	10.2	10.4
Man.	7.1	7.0	7.1	7.0	6.9	7.0	7.3	7.8	8.0	7.7
Sask.	9.7	10.0	10.4	10.8	10.6	10.8	10.8	10.7	10.7	10.6
Alta.	*8.1*	*8.2*	*8.2*	*8.3*	*9.1*	*9.3*	*10.2*	*10.2*	*10.5*	*10.8*
B.C.	*7.0*	*6.9*	*6.8*	*7.6*	*7.9*	*8.4*	*8.8*	*8.3*	*8.9*	*8.9*
Y.T.	20.0	16.5	15.9	15.6	15.7	12.9	13.0	13.2	13.3	16.8
N.W.T.	0.0	0.0	2.4	2.4	4.8	4.9	2.4	2.4	0.0	0.0
Canada	*9.6*	*9.7*	*9.8*	*10.2*	*10.2*	*10.8*	*11.1*	*11.1*	*11.2*	*11.4*

Source: HPDB/CIHI

Note

See Table OPT-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratios. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Table Opt –3. Number of Registered Optometrists by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	36	36	39	40	37	35	33	35	35	36
P.E.I.	11	11	11	11	12	15	16	14	*16* [1]	*16* [1]
N.S.	67	66	66	68	70	75 [6]	78 [6]	78 [6]	80	80
N.B.	*97* [1]	*99* [1]	*100* [1]	*102* [1]	*105* [1]	*101* [1]	*101* [1]	91	94	94
Que.	1,124	1,159	1,170	1,194	1,206	1,223	1,231	1,245	1,263	1,273
Ont.	1,026	1,043	1,046	1,103	1,165	1,194	1,240	1,268	1,296	1,326
Man.[2]	89	89	91	88	86	84	86	91	94	91
Sask.	98	101	106	110	112	111	111	109	*111* [1]	*111* [1]
Alta.	263	273	288	305	309	323	333	355	371 [3]	376 [3]
B.C.	319	333	341	416	446	465	476	489	494	485 [4]
Y.T.	6	5	5	5	5	4	4	4	4 [7]	5 [7]
N.W.T.[5]	0	0	0	1	2	2	1	1	0	0
Canada	**3,136**	**3,215**	**3,263**	**3,443**	**3,555**	**3,632**	**3,710**	**3,780**	**3,842**	**3,877**

Source: HPDB/CIHI

Notes

Italics indicate that the cell contents represent, in part (e.g. a Canada total) or entirely, estimated data (superscript notes included with estimates identify the source of the estimate i.e. CIHI or data provider). See additional notes below.

1. CIHI estimate.
2. Manitoba data from 1995–2002 as of June.
3. Alberta 2001 data as of September 5; 2002 as of August 28.
4. British Columbia 2002 data as of October 31.
5. In the Northwest Territories Ophthalmologists are responsible for the bulk of eye care. For primary eye care, much of this is delegated by the Ophthalmologist to Ophthalmic Medical Assistants, who under supervision, provide refraction services and prescribe for eye glasses. Ophthalmologists are funded and supported by the territorial health plan, whereas optometrists are not.
6. Data includes out of province and retired members.
7. Yukon 2001 data as of February 14 2002; 2002 data as of November 14.

Table Opt-4. Number of Graduates of Optometry Programs by School of Graduation, Canada, 1993–2002

School	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Université de Montréal										
B.Sc. (O.D.)	47	41	40	40	36	39	39	39	42	39
M.Sc.	..	..	4	1	1	2	4	1	5	6
University of Waterloo										
B.Sc. (O.D.)	61	60	60	60	58	61	59	56	64	55
M.Sc.	3	5	6	2	1	5	6	7	0	2
Doctorate	2	2	0	2	1	2	0	1	0	1
Canada	113	108	110	105	97	109	108	104	111	103

Source: HPDB/CIHI

Note

.. Information not available.

Endnotes

Sources

Figure Opt-1. Calculated from data in Table Opt-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure Opt-2. Calculated from data in Table Opt-2.

Table Opt-1. 1993–2002: data supplied by provincial organizations (Newfoundland Association of Optometrists, PEI Optometrists Association, Nova Scotia Association of Optometrists, New Brunswick Association of Optometrists, Association des optométristes du Québec, Ontario Association of Optometrists, Manitoba Association of Optometrists, the Saskatchewan Association of Optometrists, Alberta College of Optometrists, and Board of Examiners in Optometry—British Columbia); Ordre des optométristes du Québec, and the Canadian Association of Optometrists.

Table Opt-2. Data calculated based on Table Opt-1 and population estimates from Statistics Canada shown in Appendix C.

Table Opt-3. 1993–1997: data supplied by provincial organizations (Newfoundland Association of Optometrists, PEI Optometrists Association, Nova Scotia Association of Optometrists, Ordre des optométristes du Québec, Ontario Association of Optometrists, Manitoba Association of Optometrists, the Saskatchewan Association of Optometrists, Alberta College of Optometrists, and Board of Examiners in Optometry-British Columbia).

1998–2000: Data provided by the Canadian Association of Optometrists.

2001–2002: data supplied by provincial organizations (PEI Optometrists Association, Nova Scotia Association of Optometrists, New Brunswick Association of Optometrists (2000-2002), Ordre des optométristes du Québec, Ontario Association of Optometrists, Manitoba Association of Optometrists, the Saskatchewan Association of Optometrists, Alberta College of Optometrists, and Board of Examiners in Optometry-British Columbia, Yukon Optometrists Association); Newfoundland Optometric Board, and the Canadian Association of Optometrists.

Table Opt-4 1993–1997: Data provided by Statistics Canada.

1998–2002: Data provided by the Université de Montréal and University of Waterloo.

Pharmacists

Definition

Pharmacists prepare and dispense prescription drugs, ensure proper storage and handling of drugs, provide advice to customers and medical personnel on the administration, uses and effects of prescription and non-prescription drugs, check prescriptions for overdoses and drug interactions and keep records of dispensed drugs and health care services.

Responsibilities/Activities

Duties of a pharmacist can include: checking prescriptions for proper dosage; compounding prescribed pharmaceutical products; dispensing prescribed pharmaceuticals to patients or to other health care professionals; advising patients and other health care professionals on the administration, uses and effects of the medication, drug incompatibilities and contra-indications; maintaining medication profiles of patients including registry of poisons and narcotic and controlled drugs; ensuring proper storage of vaccines, serums, biologicals and other pharmaceutical products to prevent deterioration; ordering and maintaining a stock of pharmaceutical supplies; advising customers on selection and use of non-prescription medication; participating in basic research work for the development of new drugs; formulating new drug products developed by medical researchers; testing new drug products; co-ordinating clinical investigations of new drugs; controlling the quality of drug products during production; developing informational materials concerning the uses and properties of particular drugs; and evaluating labeling, packaging and advertising of drug products.

Practice Setting

Pharmacists generally specialize as community, institutional or industrial pharmacists. Community pharmacists own and/or practise in community pharmacies, while institutional pharmacists practise as staff pharmacists or as part of a team of health care professionals serving individual patients in hospitals, long-term care facilities and other such health care institutions. Industrial pharmacists participate in the research, development, manufacturing, and sales of pharmaceutical products.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from National Association of Pharmacy Regulatory Authorities (NAPRA) as the primary source of pharmacist data.

Secondary Data Source: Both Census and Labour Force Survey estimates are based on the 1991 Standard Occupational Classification D031 Pharmacists.

Regulatory Environment

- In Canada, all provinces have been regulated since 1973. In the Territories, the territorial governments register/license pharmacists.

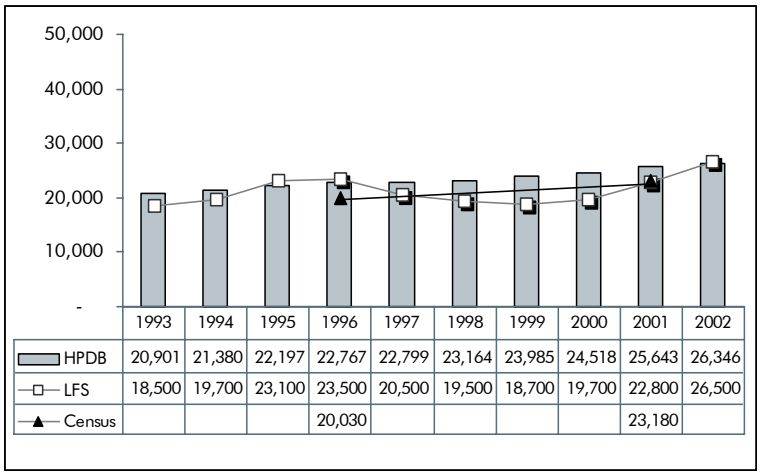
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1910	1905	1876	1884	1973	1871	1878	1911	1911	1891	1976	REG	REG

REG = Regulated in 2002, but initial year of regulation is unknown.

Supply Trends

- During the common comparable years of 1996 and 2001, HPDB counts of active registered pharmacists increased 12.6%, the Census estimates of employed pharmacists in the workplace in Canada increased 15.7%, while Labour Force Survey (LFS) estimates indicated a 3.0% decrease when comparing these two years.
- Census estimates of employed pharmacists in the workplace in Canada were lower than HPDB in both years: 12.0% lower than HPDB counts in 1996 and 9.6% lower in 2001. LFS estimates were 3.2% higher than HPDB counts in 1996 and 11.1% lower HPDB counts in 2001. LFS estimates did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002.

Figure Pharm-1. Number of Pharmacists from Selected Data Sources, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	20,901	21,380	22,197	22,767	22,799	23,164	23,985	24,518	25,643	26,346
LFS	18,500	19,700	23,100	23,500	20,500	19,500	18,700	19,700	22,800	26,500
Census				20,030					23,180	

Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

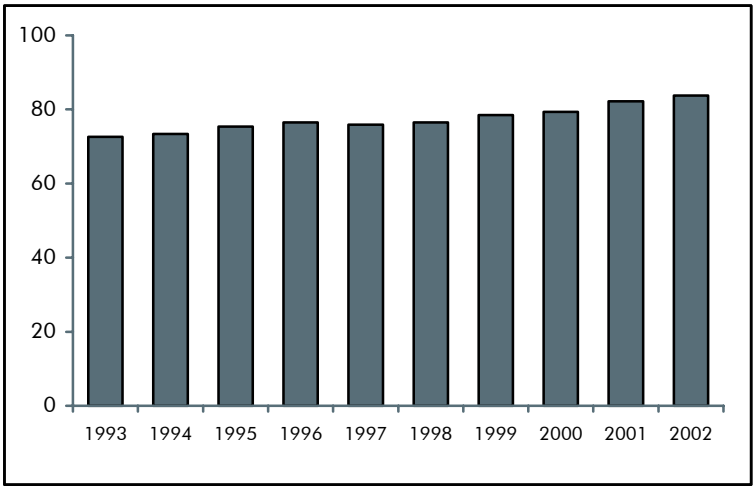
- As shown in Figure Pharm-1, the number of licensed pharmacists, as indicated by the HPDB, has increased steadily from 1993 to 2002. This represents a 26.1% increase in the total number of licensed pharmacists over this ten-year period.

- The HPDB data presented in Table Pharm-1 shows the distribution of pharmacists by province from 1993 to 2002. All provinces and territories, with the exception of Newfoundland and Labrador, New Brunswick, Saskatchewan and the Yukon, experienced a greater than 20% increase over this ten-year period.
- The number of graduates of pharmacy programs in Canada is shown in Table Pharm-4. Data is not available for all schools in 2002; therefore, it is not possible to determine at a national level the percent increase/decrease in the number of graduates in pharmacy programs in Canada.

Growth in Supply Relative to Population

- The rate of increase of licensed pharmacists, as reported in HPDB, has been greater than the population growth rate, resulting in a higher number of pharmacists per 100,000 population across Canada. The number of licensed pharmacists per 100,000 population in Canada increased 15.4% from 72.6 in 1993 to 83.8 in 2002 (see Figure Pharm-2). Over this same time period the Canadian population increased by 9.1%.

Figure Pharm-2. Number of Active Registered Pharmacists per 100,000 Population, Canada, 1993–2002



Source: HPDB/CIHI

- Table Pharm-2 illustrates in 2002 that the least number of pharmacists per 100,000 population was in Nunavut (17.4), New Brunswick (72.8), Ontario (74.5), and Quebec (83.6). These four provinces/territories were below the Canadian rate for pharmacists per 100,000 population; the remainder of the provinces/territories were the same or above the Canadian rate. The province with the highest per 100,000 population was Saskatchewan (106.9).

Accessing Personnel**

- A major part of a pharmacists' professional service is filling prescription orders from physicians and other legal prescribers such as dentists, nurse practitioners, midwives, chiropractors and optometrists. Therefore, prescriptions may be considered referrals.
- For non-prescription drugs and non-drug therapies (and the provision of drug and health information) typically the patient self-refers.

Factors That May Influence Demand for Personnel**

- An increase in prescription volumes.
- Expansion of pharmacists' role (i.e. pharmacists prescribing).
- More drugs switched to non-prescription status (worldwide trend) with reliance on pharmacists to monitor.

What Else Do We Know?

- The average age of pharmacists increased slightly from 39 to 40 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- In 2001, just over half (57%) of the pharmacists in Canada were female (Source: Census Data, Statistics Canada).
- The numbers of degree graduates of schools of pharmacy are presented in Table Pharm-4. In 1993, 61% of those graduating with a degree in pharmacy were female. By 1999 the percent of females graduating from pharmacy programs in Canada had increased to 66%.

** Please note that this information in this section is adapted from a survey completed by the staff at the National Association of Pharmacy Regulatory Authorities (see Appendix B for the survey tool).

Entering the Profession

Number of Years	Education and/or Training Required to Enter Practice in Canada
1 (pre-pharm) + 4	Completion of a degree in pharmacy, accredited by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP); or a body recognized by CCAPP; or determined to be equivalent to a CCAPP-recognized program by a provincial pharmacy regulatory authority; or determined to be equivalent to a CCAPP-accredited program by the Pharmacy Examining Board of Canada.[†]
Less than 1 year, but actual time requirement varies between provinces (generally 24–48 weeks) with a portion accumulated during undergraduate years.	[†]Completion of a practical training component (see http://www.napra.org/docs/0/94/107/211.asp). Some of this training will be accomplished during undergraduate training, some will need to be achieved post-graduation—depends on the Faculty. This requirement may vary in Quebec. Fulfilling fluency requirements. (see http://www.napra.org/docs/0/94/107/206.asp). Completion of a jurisprudence exam. (see http://www.napra.org/docs/0/94/107/208.asp).
Exam is usually taken within a few months after graduation. It is not required for Quebec domestic grads.	Completion of the Qualifying Exam of the Pharmacy Examining Board of Canada.[†]

[†] NAPRAs National Model Licensing Program. (All provinces except Quebec have adopted NAPRAs National Model Licensing Program which can be found at http://www.napra.org/docs/0/94/107.asp).

Changes to Education and/or Training Requirements

- Preliminary discussions about the possibility of a Doctor of Pharmacy or a Bachelor's degree that requires two years of undergraduate university preparation instead of one year are underway in some jurisdictions.

Possible Areas of Certified Specialization

- Currently, the National Association of Pharmacy Regulatory Authorities (NAPRA) is working on behalf of the licensing bodies to develop formal pharmacists' specialty certification programs in: anti-coagulation therapy, diabetes therapy and asthma therapy. It is expected that this initiative will be launched in 2004.
- The British Columbia College of Pharmacists also has a certification program for pharmacists in emergency contraception.

What's Happening?

Listed are references to key research documents relating to pharmacists that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

- No suggestions available at this time.

Research in Progress

1. NAPRA is a Signatory and participant in the HRDC Sectoral Study on Pharmacists and Pharmacy Technicians. A funding grant request has been submitted.
2. A project is currently underway with NAPRA and their US counterpart, the National Association of Boards of Pharmacy, to compare the entry-to-practice competencies for pharmacists in the US and Canada. The results of this study will help in the development of a mutual reciprocity agreement to enhance mobility of pharmacists between Canada and the US, a priority of Members.
3. Currently NAPRA is in the process of developing a national model continuing competence framework for pharmacists. Implementation of a standardized continuing competence program is a term of NAPRA's *Mutual Recognition Agreement for the Profession of Pharmacy in Canada*.

** Please note that this information in this section is adapted from a survey completed by the staff at the National Association of Pharmacy Regulatory Authorities (see Appendix B for the survey tool).

Data Tables

Table Pharm-1 Number of Active Registered Pharmacists by Province/Territory of Practice, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	455	445	484	483	489	491	534	514	526	540
P.E.I.	104	101	112	111	113	109	112	119	131	138
N.S.	740	761	788	828	818	907	932	940	931	988
N.B.	493	477	478	511	533	539	564	570	554	551
Que.	4,718	4,860	5,342	5,387	5,148	5,096	5,457	5,670	6,141	6,238
Ont.	7,345	7,531	7,666	7,852	7,928	8,070	8,238	8,490	8,790	9,023
Man.	858	846	858	914	906	875	940	899	990	1,086
Sask.	983	1,013	1,043	1,049	1,080	1,081	1,100	1,108	1,129	1,080
Alta.	2,515	2,538	2,545	2,609	2,686	2,784	2,816	2,904	2,990	3,086
B.C.	2,645	2,747	2,812	2,946	3,032	3,147	3,223	3,248	3,406	3,544
Y.T.	26	37	27	30	30	20	22	26	27	31
N.W.T.	19	24	42	47	36	45	47	25	23	36
Nun.	..	..	..	..	..	..	..	5	5	5
Canada	**20,901**	**21,380**	**22,197**	**22,767**	**22,799**	**23,164**	**23,985**	**24,518**	**25,643**	**26,346**

Source: HPDB/CIHI

Notes
.. Information not available.
Data excludes Non-Practicing, Honorary Pharmacists and Certified Clerks.

Table Pharm-2. Number of Active Registered Pharmacists per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	78.8	77.9	85.8	86.6	88.9	90.4	98.8	95.8	98.6	101.6
P.E.I.	78.2	75.2	82.6	81.3	82.6	79.4	81.1	86.0	94.0	98.3
N.S.	80.0	82.1	84.8	88.7	87.4	96.8	98.8	99.7	98.6	104.5
N.B.	65.7	63.5	63.5	67.8	70.7	71.5	74.6	75.5	73.3	72.8
Que.	65.6	67.3	73.6	73.9	70.4	69.5	74.1	76.7	82.6	83.6
Ont.	68.3	69.2	69.5	70.3	70.1	70.6	71.1	72.1	73.5	74.5
Man.	76.6	75.1	75.9	80.5	79.7	76.8	82.2	78.4	86.2	94.4
Sask.	97.6	100.1	102.6	102.8	105.5	105.3	107.4	108.7	111.3	106.9
Alta.	93.6	93.3	92.2	93.0	93.7	94.9	94.5	95.8	96.9	98.7
B.C.	72.9	73.5	73.3	75.1	76.1	78.5	79.7	79.7	82.7	85.4
Y.T.	86.7	122.1	85.7	93.4	94.0	64.4	71.7	86.0	89.7	104.1
N.W.T.	47.1	58.2	101.0	112.8	86.9	110.0	114.7	60.9	55.8	86.9
Nun.	..	..	..	..	..	..	..	18.0	17.7	17.4
Canada	**72.6**	**73.4**	**75.4**	**76.5**	**75.9**	**76.5**	**78.5**	**79.4**	**82.2**	**83.8**

Source: HPDB/CIHI

Notes
.. Information not available.
See Table Pharm-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratio in Table Pharm-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Table Pharm-3. Number of Registered Pharmacists by Province/Territory of Practice, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	491	486	529	526	524	530	572	546	558	577
P.E.I.	107	104	114	114	115	115	117	125	131	138
N.S.	849	874	899	902	844	907	984	970	984	1,041
N.B.	596	555	549	578	570	573	604	618	604	603
Que.	4,988	5,222	5,716	5,761	5,631	5,096	5,852	5,988	6,394	6,345
Ont.	8,169	8,326	8,479	8,543	8,615	8,727	8,884	9,113	9,382	9,600
Man.	1,075	1,088	1,022	1,100	1,093	875	1,101	899	990	1,037
Sask.	1,367	1,413	1,421	1,428	1,506	1,128	1,127	1,506	1,434	1,344
Alta.	3,060	3,125	3,134	3,132	3,148	3,193	3,182	3,255	3,726	3,945
B.C.	3,552	3,850	3,987	3,960	4,451	3,147	3,971	3,248	3,406	3,544
Y.T.	26	37	27	30	30	29	22	26	27	31
N.W.T.	19	24	49	47	36	45	47	25	23	36
Nun.	..	..	..	..	..	..	..	5	5	5
Canada	**24,299**	**25,104**	**25,926**	**26,121**	**26,563**	**24,365**	**26,463**	**26,324**	**27,664**	**28,246**

Source: HPDB/CIHI

Notes
.. Information not available.
Data includes Non-Practicing, Honorary Pharmacists and Certified Clerks.

Table Pharm-4. Number of Degree Graduates of Schools for Pharmacy, by Gender and School of Graduation, Canada, 1993–2002

School	1993	1994	1995	1996	1997	1998	1999	2000 [3]	2001 [3]	2002 [3]
Memorial University	31	32	33	29	34	31	36	38	40	35
Males	12	12	17	13	17	13	21	..	..	..
Females	19	20	16	16	17	18	15	..	..	..
Dalhousie University	63	60	67	63	69	62	62	66	64	62
Males	18	15	23	19	19	21	20	..	19	15
Females	45	45	44	44	50	41	42	..	45	47
Université Laval	98	94	96	114	120	103	98	145	..	..
Males	30	25	33	37	37	28	24	..	..	..
Females	68	69	63	77	83	75	74	..	..	..
Université de Montréal	101	112	105	136	107	115	123	149	107	94
Males	29	31	31	53	37	39	45	..	..	..
Females	72	81	74	83	70	76	78	..	..	..
University of Toronto [1]	149	146	159	161	0 [2]	129	109	122	111	117
Males	57	57	65	65	0	38	33	..	..	..
Females	92	89	94	96	0	91	76	..	..	..
University of Manitoba	46	46	44	28	49	49	46	42	47	48
Males	19	22	24	8	27	20	16	..	..	..
Females	27	24	20	20	22	29	30	..	..	..
University of Saskatchewan	74	67	73	76	78	74	71	74	75	65
Males	31	27	37	31	23	21	27	..	..	..
Females	43	40	36	45	55	53	44	..	..	..
University of Alberta [1]	102	105	102	101	98	96	99	104	104	95
Males	46	59	47	42	31	35	28	..	..	..
Females	56	46	55	59	67	61	71	..	..	..
University of British Columbia [1]	107	102	108	119	119	122	130	136	117	142
Males	58	52	53	48	41	50	49	..	..	..
Females	49	50	55	71	78	72	81	..	..	..
Canada	**771**	**764**	**787**	**827**	**674**	**781**	**774**	**876**	**665**	**658**

Source: HPDB/CIHI

Notes
.. Information not available.
1. Includes graduates from Master's degree program.
2. No graduating class of 1997 due to a change in program length.
3. Distribution by gender not available in 2000–2002.

Endnotes

Sources

Figure Pharm-1. Calculated from data in Table Pharm-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure Pharm-2. Calculated from data in Table Pharm-2.

Table Pharm-1. 1993–1994: Canadian Pharmaceutical Association.
1995–2002: National Association of Pharmacy Regulatory Authorities (NAPRA).

Table Pharm-2. Data calculated based on Table Pharm-1 and population estimates from Statistics Canada shown in Appendix C.

Table Pharm-3. 1993–1994: Canadian Pharmaceutical Association.

1995–2002: National Association of Pharmacy Regulatory Authorities (NAPRA).

Table Pharm-4. The Pharmacy Examining Board of Canada.

Physicians

Definition

Physicians prevent, diagnose, and treat human illness and assist in rehabilitation after the onset of disease or injury. Canadian-trained physicians typically hold an undergraduate Doctor of Medicine (MD) degree and, as of 1993, an additional medical specialty certificate requiring at least two years of postgraduate medical residency training.

Responsibilities/Activities

The general duties of physicians include: taking a medical history from patients; examining patients, ordering laboratory tests, X-rays and other diagnostic procedures and consulting with other medical practitioners to evaluate patients' health; prescribing and administering medications and other treatments including surgery; and advising patients on health and health care. Physicians train specifically as family physicians or as specialists in laboratory, surgical or medical specialties and activities will vary depending on the type of practice.

Practice Setting

Physicians work in a broad range of settings, including community based clinics and doctor's offices, hospitals and other institutional health care settings such as nursing homes, laboratories, universities and government.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from the Southam Medical Database (SMDB) as the primary source of physician data.

Secondary Data Source: This publication utilizes additional data from two survey sources (Labour Force Survey/Statistics Canada and Census/Statistics Canada). Both Census and LFS estimates are based on the Standard Occupational Classifications D012 General Practitioners and Family Physicians + D011 Specialist Physicians.

Visit www.cihi.ca for more information.

Regulatory Environment

- Physicians have been regulated in all provinces in Canada for over a century.

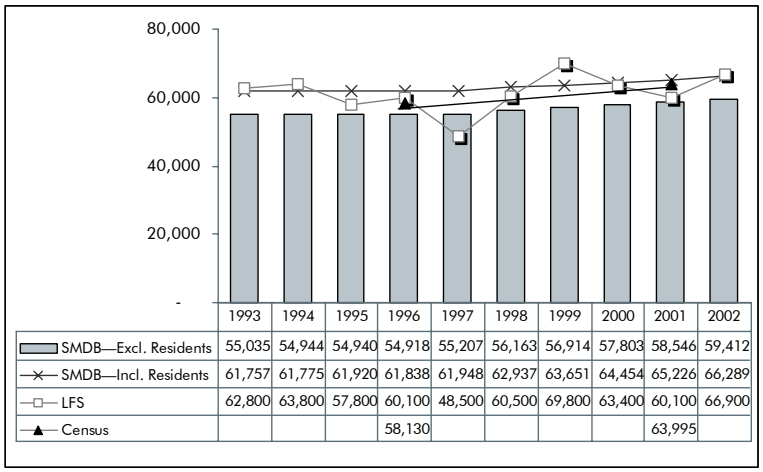
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1893	1871	1828	1816	1848	1795	1871	1885	1885	1867	1958	1885	REG

REG = Regulated in 2002, but initial year of regulation is unknown.

Supply Trends

- In order to compare results from the various data sources, postgraduate resident physicians counts from the Canadian Post-M.D. Education Registry (CAPER) have been added to the SMDB counts. Figure Phys-1 illustrates the potential differences between the various data sources.
- During the comparable years of 1996 and 2001, SMDB counts of physicians, including residents, increased 5.5%, while Census estimates of employed physicians in the workplace in Canada increased 10.1%. Labour Force Survey (LFS) estimates indicate that in both years there were 60,100 physicians in Canada.
- Census estimates of employed physicians in the workplace in Canada were slightly lower than the SMDB (including residents) in both years (6.0% lower in 1996 and 1.9% lower in 2001—see Figure Phys-1). LFS physician count estimates were 2.8% lower than SMDB counts in 1996 and 7.9% lower in 2001. Furthermore, LFS estimates did not follow the general trend exhibited in the SMDB data during the period 1993 to 2002.

Figure Phys-1. Number of Physicians from Selected Data Sources, Canada, 1993–2002

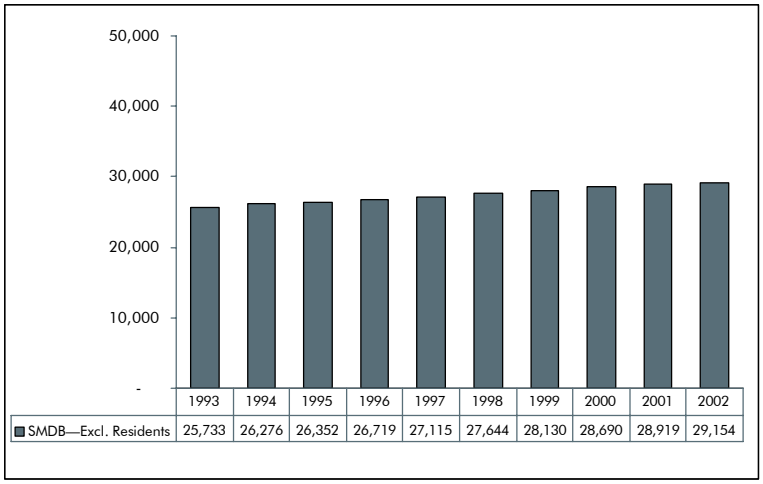


	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SMDB—Excl. Residents	55,035	54,944	54,940	54,918	55,207	56,163	56,914	57,803	58,546	59,412
SMDB—Incl. Residents	61,757	61,775	61,920	61,838	61,948	62,937	63,651	64,454	65,226	66,289
LFS	62,800	63,800	57,800	60,100	48,500	60,500	69,800	63,400	60,100	66,900
Census				58,130					63,995	

Sources: SMDB/CIHI; CAPER (Resident data), LFS/Statistics Canada, Census/Statistics Canada

- SMDB physician count data suggests a steadily increasing supply between1997 and 2002 (see Figure Phys-1). Growth was generally flat during the period 1993–1997.
- The number of physicians in Canada, excluding residents, is illustrated in Figure Phys-1 and Table Phys-1. The total number of physicians in Canada has increased by 8.0%, from 55,035 in 1993 to 59,412 in 2002 (SMDB, excluding residents). Three provinces (New Brunswick, Alberta and British Columbia) exceeded the percent increase seen at the national level over the period 1993 to 2002. In all other provinces the percent increase was below the national level.

Figure Phys-2. Number of Specialists Excluding Residents, Canada, 1993–2002

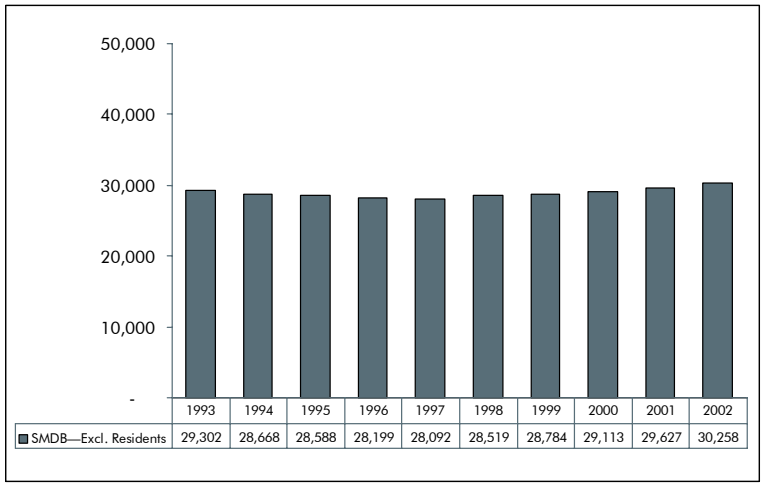


	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SMDB—Excl. Residents	25,733	26,276	26,352	26,719	27,115	27,644	28,130	28,690	28,919	29,154

Sources: SMDB/CIHI, CAPER (Resident data)

- Table Phys-1 shows the distribution of all physicians by province from 1993–2002. All provinces experienced an increase in the number of physicians over this ten-year period, with the exception of Newfoundland and Labrador, where physician supply decreased by 4.1%. Provincially, the largest percentage increases over this ten-year period have occurred in Alberta (23.2), British Columbia (14.0), and New Brunswick (12.4).
- SMDB data on the number of specialist physicians in Canada (excluding residents) increased gradually from 1993 to 2002. SMDB results indicate a 13.3% increase in the number of specialist physicians during this ten-year period (see Figure Phys-2).

Figure Phys-3. Number of Family Physicians Excluding Residents, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SMDB—Excl. Residents	29,302	28,668	28,588	28,199	28,092	28,519	28,784	29,113	29,627	30,258

Sources: SMDB/CIHI; CAPER (Resident data)

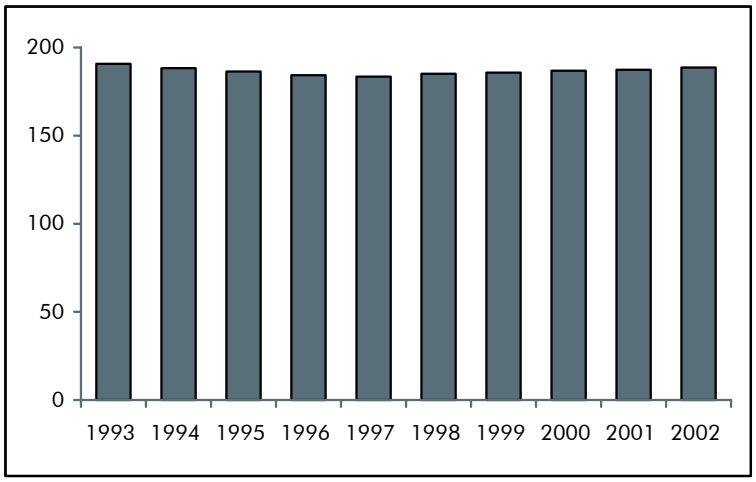
- SMDB data on the number of family medicine physicians in Canada (excluding residents) decreased from 1993 to 1997, before increasing gradually to 2002. As shown in Figure Phys-3, SMDB results indicate the number of family medicine physicians, excluding residents, increased 3.3% between 1993 and 2002.

- Within the SMDB, physicians are assigned to medical specialty groups based on Canadian postgraduate certification status. Medical doctors who complete postgraduate training in family medicine programs within Canada are classified as family physicians. Medical doctors who achieve postgraduate certification in Canada in medical disciplines other than family medicine are classified as specific medical, surgical or laboratory specialist physicians.
- Medical doctors who have not (yet) completed postgraduate training in Canada or who have achieved postgraduate medical credentials in countries other than Canada are classified as General Practitioners.
- The methodology of grouping physicians based upon Canadian postgraduate certification credentials provides a standardized approach for describing the mix of medical specialists in all of Canada's jurisdictions. However, it fails to reflect the specialty practice of medical doctors who have achieved postgraduate certification credentials outside of Canada or who have not yet achieved postgraduate certification in Canada.
- Provincial/territorial medical boards/associations and/or physician payment programs may recognize international postgraduate training credentials in licensing/paying doctors as medical specialists. Such doctors may be referred to as non-certified, uncertified or foreign-certified specialists.
- Non-certified specialists represent a variable proportion of the physician workforce across jurisdictions. For example, information from the Newfoundland Medical Board indicates that in June 2003, 14% of the licensed physician workforce in Newfoundland and Labrador was comprised of non-certified specialists. However, information from New Brunswick Health and Wellness indicates that in February 2004, 3% of New Brunswick's physician workforce was comprised on uncertified specialists.

Growth in Supply Relative to Population

- The number of physicians per 100,000 population in Canada decreased 1.1% from 190.8 in 1993 to 188.7 in 2002 (see Figure Phys-4). Over this same time period the Canadian population increased by 9.1%.
- Table Phys-2 shows in 2002 the highest number of physicians per 100,000 population was in Quebec (211.7), Nova Scotia (205.6), and British Columbia (198.6). These three provinces were the only ones that had physicians per 100,000 population above the Canadian ratio; the remainder of the provinces were the same or below. The province with the lowest per 100,000 population was Prince Edward Island (136.1).

Figure Phys-4. Number of Physicians per 100,000 Population, Canada, 1993–2002



Sources: HPDB/CIHI, SMDB/CIHI

Accessing Personnel**

- Typically a referral is not required if a person is visiting a primary care physician.
- A referral is required if the person is seeing a specialist for the first time or for a new health problem.
- Family physicians are the primary source of referrals to specialists; however, specialists will refer to other specialists and family physicians can refer to another family physician for specific services.
- The primary driver of physician resources is the patient seeking professional medical assistance in order to promote health and prevent, treat and manage disease.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Medical Association (see Appendix B for the survey tool).

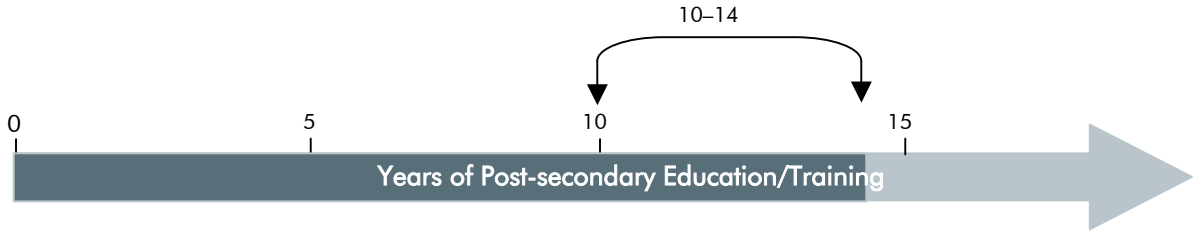
What Else Do We Know?

Visit www.cihi.ca for more information.

- The average age of family medicine physicians increased from 43 to 47 years between 1993 and 2002. The average age of specialist physicians increased slightly from 48 to 49 between 1993 and 2002 (Source: SMDB, CIHI).
- In 2002, approximately 70% of family medicine physicians were male, and 80% of specialists were male. (Source: SMDB, CIHI).
- In 1993, 42.5% of graduates from Canadian medical schools were female; in 2002, over 50% of graduates were female (see Table Phys-7).
- CIHI's National Physician Database contains demographic, education and practice characteristic information, as well as service utilization data, on fee-for-service physicians in Canada. Publications series titles from the NPDB include: *Alternative Payments and the National Physician Database, The Status of Alternative Payment Programs, for Physicians in Canada; Average Payment per Physician (APP) Report (report series); Full-time Equivalent Physicians (FTE) Report; National Grouping System Categories; and the Reciprocal Billing (RB) Report*. Please visit www.cihi.ca or email npdb@cihi.ca for complete information.
- Using empirical data from a variety of sources, the CIHI report *From Perceived Surplus to Perceived Shortage: What Happened to Canada's Physician Workforce in the 1990s?* report dissects the various trends affecting the physician workforce in the 1990s in order to understand how this change of perceptions could have occurred. The report addresses four main questions:
  - What happened to the balance between physician supply and demand in the 1990s?
  - How did this drop in the "real" physician-population ratio occur?
  - What policies were in place in the 1990s which may have contributed to the drop in physician supply?
  - Why does it "feel like" we have a physician shortage?

Visit www.cihi.ca for more information.

Entering the Profession**



Number of Years	Education and/or Training Required to Enter Practice in Canada
4	Pre-med education (4 yrs)
8	Medical school (4 yrs) (In Quebec if entering through CEGEP, this can be 7 years total rather than 8)
10	Family Medicine training (2 yrs)
11	Additional Family Medicine training in Emergency Medicine, Palliative Medical Care of the Elderly, rural training (1 yr)
12	General Internal Medicine, Pediatrics and General Pathology (4 yrs)
14	All other medical specialties and medical subspecialties (5 yrs) 13 yrs (if resident does not "overlap" training, subspecialties require 6 yrs)
14	Cardiology (6 yrs)
13	Surgical specialties (5 yrs)
14	Surgical subspecialties and Cardiac Surgery (6 yrs)

- In order to practise as a physician in Canada, individuals must meet the registration requirements established by individual regulatory authorities in each individual province/territory. For a useful summary of the requirements to practise in Canada, please visit the Canadian Information Centre for International Credentials website at www.cicic.ca.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Medical Association (see Appendix B for the survey tool).

Changes to Education and/or Training Requirements

- There are no anticipated changes.

Possible Areas of Certified Specialization

- In Canada, there are over 45 distinct certified physician specialties in addition to a number of available Certificates of Special Competence and Accreditation without Certification. For details on areas of certified specialization please visit the Royal College of Physicians and Surgeons of Canada at www.rcpsc.medical.org.

What's Happening?

Listed are references to key research documents relating to physicians that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *A Physician Human Resource Strategy for Canada*, Task Force Two, Physician Workforce in Canada: Literature Review and Gap Analysis. Ottawa 2002.
2. *Health Human Resource Planning in Canada*, Physician and Nursing Work Force Issues, Canadian Policy Research Network for Commission on the Future of Health Care in Canada, October 2002.
3. *The Development of a Multistakeholder Framework/Index of Rurality*, CMA, CAN, SRPC, CPhA, February 2003 (Contains environmental scan of rural initiatives).
4. *Physician Resource Planning in Canada*, National Ad Hoc Working Group on Physician Resources, September 1995.
5. *From Perceived Surplus to Perceived Shortage: What Happened to Canada's Physician Workforce in the 1990s?* Canadian Institute for Health Information, June 2002.
6. *The Practicing Physician Community in Canada, 1989/90 to 1998/99*. Canadian Institute for Health Information, 2001. ML Barer, GL Stoddart. Toward integrated medical resource policies for Canada. Prepared for the Federal/Provincial/Territorial Conference of Deputy Ministers of Health, June 1991.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Medical Association (see Appendix B for the survey tool).

Research in Progress

1. *A Physician Human Resource Strategy for Canada*, Task Force Two (www.physicianhr.ca).
2. The Canadian Taskforce on International Medical Graduate Licensure (www.imgtaskforce.ca).
3. 2004 National Physician Survey: data will be collected from all Canadian physicians, describing practice patterns, practice settings, shared care with other health care providers and use of technology (contact: npdb@cihi.ca for more information).
4. *Beyond Head Counts: Activity of Family Physicians/General Practitioners 1989–1999*. This 2004 CIHI's report will describe fee-for-service billing trends, covering clinical service areas such as obstetrics, anaesthesia, surgery, advanced and basic office procedures as well as hospital inpatient services (contact: npdb@cihi.ca for more information).

Data Tables

Table Phys-1. Total Number of Physicians[1], Excluding Interns and Residents, by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000 [2]	2001	2002 [3]
N.L.	969	968	940	924	931	926	925	927	945	929
P.E.I.	179	178	176	170	165	175	180	178	190	191
N.S.	1,856	1,774	1,731	1,744	1,763	1,828	1,868	1,898	1,885	1,943
N.B.	1,054	1,074	1,107	1,121	1,126	1,151	1,162	1,153	1,179	1,185
Que.	14,826	15,002	15,151	15,232	15,306	15,472	15,582	15,770	15,866	15,800
Ont.	20,738	20,525	20,407	20,209	20,194	20,460	20,701	21,176	21,482	21,735
Man.	2,007	1,973	1,978	1,968	2,008	2,014	2,049	2,082	2,093	2,077
Sask.	1,499	1,541	1,524	1,472	1,472	1,529	1,568	1,567	1,549	1,564
Alta.	4,576	4,546	4,481	4,468	4,509	4,755	4,962	5,014	5,154	5,637
B.C.	7,231	7,258	7,338	7,502	7,617	7,746	7,812	7,943	8,105	8,243
Y.T.	39	42	44	47	50	45	41	41	54	52
N.W.T.[4]	61	63	63	61	66	62	53	47	37	46
Nun.	..	..	..	..	..	..	11	7	7	10
Canada	**55,035**	**54,944**	**54,940**	**54,918**	**55,207**	**56,163**	**56,914**	**57,803**	**58,546**	**59,412**

Source: SMDB/CIHI

Notes

.. Information not available.

1. Excludes residents and physicians who are not licensed to provide clinical practice and have requested to the Business Information Group (formerly Southam Medical Group) that their data not be published. Data as of December 31 of given year. Includes "active" physicians in clinical and/or non-clinical practice, including research, teaching or administration. "Active" on SMDB indicates that the physician has an M.D. and a valid mailing address.
2. Alberta and Yukon data in 2000 does not reflect the annual update from the College of Physicians and Surgeons of Alberta and the Government of the Yukon, respectively.
3. Ontario data in 2002 does not reflect four of twelve monthly updates (September—December, 2002) from the College of Physicians and Surgeons of Ontario (see Methodological Notes for details).
4. Caution must be exercised when comparing Northwest Territory data prior to 1999 with Northwest Territory data after 1998, since some of the change may be attributable to the creation of the Nunavut Territory.

Table Phys-2. Number of Physicians per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	167.8	169.5	166.6	165.8	169.3	170.5	171.1	172.8	177.2	174.8
P.E.I.	134.6	132.5	129.9	124.5	120.6	127.5	130.3	128.6	136.4	136.1
N.S.	200.5	191.4	186.2	186.9	188.4	195.0	198.1	201.3	199.7	205.6
N.B.	140.5	142.9	147.1	148.8	149.3	152.8	153.7	152.6	156.1	156.6
Que.	206.2	207.6	208.7	209.0	209.3	210.9	211.5	213.2	213.4	211.7
Ont.	192.9	188.5	185.0	181.0	178.5	178.9	178.5	179.8	179.6	179.5
Man.	179.2	175.3	174.9	173.4	176.7	176.8	179.1	181.5	182.3	180.6
Sask.	148.8	152.3	150.0	144.2	143.8	149.0	153.1	153.7	152.7	154.9
Alta.	170.3	167.1	162.4	159.3	157.3	162.1	166.5	165.4	167.0	180.2
B.C.	199.3	194.2	191.4	191.2	191.1	193.1	193.1	194.8	196.7	198.6
Y.T.	130.0	138.6	139.7	146.3	156.7	144.9	133.6	135.6	179.4	174.6
N.W.T.	151.1	152.9	151.5	146.5	159.3	151.5	129.3	114.6	89.8	111.0
Nun.	..	..	..	..	..	..	40.5	25.2	24.7	34.7
Canada	**190.8**	**188.4**	**186.3**	**184.3**	**183.5**	**185.2**	**185.8**	**186.9**	**187.4**	**188.7**

Source: SMDB/CIHI

Notes

.. Information not available.

See Table Phys-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratio in Table Phys-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix B).

Table Phys-3 Total Number of Physicians, Including Interns and Residents[1], by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000 [2]	2001	2002 [3]
N.L.	1,163	1,168	1,148	1,133	1,145	1,125	1,117	1,101	1,117	1,097
P.E.I.	179	178	176	170	165	175	180	178	190	191
N.S.	2,208	2,127	2,086	2,093	2,113	2,172	2,226	2,268	2,265	2,332
N.B.	1,054	1,074	1,107	1,121	1,126	1,151	1,162	1,153	1,179	1,185
Que.	16,784	17,015	17,227	17,322	17,306	17,542	17,641	17,761	17,799	17,740
Ont.	23,240	23,042	22,917	22,702	22,620	22,854	23,071	23,525	23,824	24,173
Man.	2,333	2,297	2,311	2,281	2,314	2,328	2,358	2,393	2,404	2,399
Sask.	1,692	1,748	1,734	1,679	1,680	1,734	1,777	1,773	1,754	1,778
Alta.	5,268	5,248	5,203	5,199	5,228	5,481	5,693	5,749	5,932	6,448
B.C.	7,736	7,773	7,864	8,030	8,135	8,268	8,321	8,458	8,664	8,838
Y.T.	39	42	44	47	50	45	41	41	54	52
N.W.T.[4]	61	63	63	61	66	62	53	47	37	46
Nun.	..	..	..	..	..	..	11	7	7	10
Canada	**61,757**	**61,775**	**61,880**	**61,838**	**61,948**	**62,937**	**63,651**	**64,454**	**65,226**	**66,289**

Sources: SMDB/CIHI, CAPER

Notes

.. Information not available.

1. Physicians counts reflect the summation of data from two distinct sources: The total of "active" physicians from the Southam Medical Database and resident (post-Medical Degree (M.D.) trainees) counts from the Canadian Post MD Education Registry (CAPER). Data as of December 31 of the given year. SMDB data exclude residents and physicians who are not licensed to provide clinical practice and have requested to the Business Information Group (formerly Southam Medical Group) that their data not be published ("Active" on SMDB indicates that the physician has an M.D. and a valid mailing addres). The CAPER resident data exclude foreign physicians training in Canada by Visa, and physician Fellows receiving medical training/education beyond initial M.D. education (Prince Edward Island and New Brunswick interns and residents are included in Nova Scotia's total for 1993 to 1994). These counts will be an over estimate of the number of physicians—see Methodological Notes for details.
2. Alberta and Yukon data in 2000 does not reflect the annual update from the College of Physicians and Surgeons of Alberta (see Methodological Notes for details).
3. Ontario data in 2002 does not reflect four of twelve monthly updates (September–December, 2002) from the College of Physicians and Surgeons of Ontario.
4. Caution must be exercised when comparing Northwest Territory data prior to 1999 with Northwest Territory data after 1998, since some of the change may be attributable to the creation of the Nunavut Territory.

Table Phys-4. Total Number of Family Medicine Physicians[1], Excluding Interns and Residents, by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000 [2]	2001	2002 [3]
N.L.	640	635	606	565	568	560	556	571	599	585
P.E.I.	107	105	100	99	95	100	103	105	115	119
N.S.	1,043	958	930	923	923	947	955	952	959	1,007
N.B.	632	639	660	662	657	675	686	679	699	700
Que.	7,413	7,414	7,524	7,553	7,554	7,679	7,745	7,821	7,857	7,917
Ont.	10,734	10,329	10,208	9,900	9,769	9,796	9,795	9,974	10,155	10,242
Man.	1,045	1,007	1,010	990	1,002	1,011	1,044	1,062	1,081	1,073
Sask.	945	948	931	878	868	896	944	932	944	966
Alta.	2,558	2,503	2,452	2,397	2,375	2,511	2,620	2,608	2,692	3,020
B.C.	4,100	4,043	4,080	4,143	4,186	4,258	4,256	4,339	4,445	4,541
Y.T.	36	37	39	40	43	39	35	35	50	48
N.W.T.[4]	49	50	48	49	52	47	35	29	24	30
Nun.	..	..	..	..	..	..	10	6	7	10
Canada	**29,302**	**28,668**	**28,588**	**28,199**	**28,092**	**28,519**	**28,784**	**29,113**	**29,627**	**30,258**

Source: SMDB/CIHI

Notes

.. Information not available.

1. Excludes residents and physicians who are not licensed to provide clinical practice and have requested to the Business Information Group (formerly Southam Medical Group) that their data not be published. Data as of December 31 of given year. Includes "active" physicians in clinical and/or non-clinical practice, including research, teaching or administration. "Active" on SMDB indicates that the physician has an M.D. and a valid mailing address. Family medicine includes uncertified specialists/general practitioners and family medicine and emergency family medicine specialist physicians. Specialty is based on most recent certified specialty, and data may differ from other sources of provincial/territorial physician data that categorize physicians on some other basis (e.g. functional specialty, payment specialty, provisional license or other).
2. Alberta and Yukon data in 2000 does not reflect the annual update from the College of Physicians and Surgeons of Alberta and the Government of the Yukon, respectively.
3. Ontario data in 2002 does not reflect four of twelve monthly updates (September—December, 2002) from the College of Physicians and Surgeons of Ontario.
4. Caution must be exercised when comparing Northwest Territory data prior to 1999 with Northwest Territory data after 1998, since some of the change may be attributable to the creation of the Nunavut Territory.

Table Phys-5. Total Number of Specialists, Excluding Interns and Residents[1], by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000 [2]	2001	2002 [3]
N.L.	329	333	334	359	363	366	369	356	346	344
P.E.I.	72	73	76	71	70	75	77	73	75	72
N.S.	813	816	801	821	840	881	913	946	926	936
N.B.	422	435	447	459	469	476	476	474	480	485
Que.	7,413	7,588	7,627	7,679	7,752	7,793	7,837	7,949	8,009	7,883
Ont.	10,004	10,196	10,199	10,309	10,425	10,664	10,906	11,202	11,327	11,493
Man.	962	966	968	978	1,006	1,003	1,005	1,020	1,012	1,004
Sask.	554	593	593	594	604	633	624	635	605	598
Alta.	2,018	2,043	2,029	2,071	2,134	2,244	2,342	2,406	2,462	2,617
B.C.	3,131	3,215	3,258	3,359	3,431	3,488	3,556	3,604	3,660	3,702
Y.T.	3	5	5	7	7	6	6	6	4	4
N.W.T.[4]	12	13	15	12	14	15	18	18	13	16
Nun.	..	..	..	..	..	..	1	1	0	0
Canada	**25,733**	**26,276**	**26,352**	**26,719**	**27,115**	**27,644**	**28,130**	**28,690**	**28,919**	**29,154**

Source: SMDB/CIHI

Notes

.. Information not available.

1. Excludes residents and physicians who are not licensed to provide clinical practice and have requested to the Business Information Group (formerly Southam Medical Group) that their data not be published. Data as of December 31 of given year. Includes "active" physicians in clinical and/or non-clinical practice, including research, teaching or administration. "Active" on SMDB indicates that the physician has an M.D. and a valid mailing address. Specialty is based on most recent postgraduate specialty certification achieved within Canada. SMDB specialist counts do not include uncertified/foreign-certified specialist physicians and may, therefore, differ from other sources of provincial/territorial physician data that categorize physicians on some other basis (e.g. functional specialty, payment specialty, provisional license or other); counts of specialist physicians on SMDB excludes family medicine and emergency family medicine physicians (counted as family medicine physicians).
2. Alberta and Yukon data in 2000 does not reflect the annual update from the College of Physicians and Surgeons of Alberta and the Government of the Yukon, respectively.
3. Ontario data in 2002 does not reflect four of twelve monthly updates (September–December, 2002) from the College of Physicians and Surgeons of Ontario.
4. Caution must be exercised when comparing Northwest Territory data prior to 1999 with Northwest Territory data after 1998, since some of the change may be attributable to the creation of the Nunavut Territory.

Table Phys-6. Summary of Physician Supply Characteristics, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000[1]	2001	2002[2]
SUPPLY										
Number of Physicians	55,035	54,944	54,940	54,918	55,207	56,163	56,914	57,803	58,546	59,412
Family Medicine	29,302	28,668	28,588	28,199	28,092	28,519	28,784	29,113	29,627	30,258
Specialists	25,733	26,276	26,352	26,719	27,115	27,644	28,130	28,690	28,919	29,154
Average age	45.6	45.9	46.2	46.4	46.8	47.1	47.3	47.5	47.6	47.7
Family Medicine	43.3	43.9	44.3	44.7	45.2	45.5	45.8	46.2	46.4	46.6
Specialists	48.1	48.0	48.3	48.3	48.5	48.6	48.8	48.8	48.9	48.8
Gender										
Male										
Family Medicine	20,638	19,956	19,684	19,248	18,981	19,073	19,016	19,068	19,204	19,417
Specialists	20,875	21,123	21,015	21,039	21,189	21,397	21,580	21,771	21,660	21,579
Female										
Family Medicine	8,649	8,708	8,900	8,949	9,105	9,436	9,754	10,022	10,387	10,758
Specialists	4,854	5,151	5,336	5,679	5,924	6,246	6,549	6,918	7,257	7,566
Unknown Gender										
Family Medicine	15	4	4	2	6	10	14	23	36	83
Specialists	4	2	1	1	2	1	1	1	2	9
Specialty										
Family Medicine	29,302	28,668	28,588	28,199	28,092	28,519	28,784	29,113	29,627	30,258
Specialists										
Clinical Specialists	16,798	17,214	17,382	17,727	18,064	18,435	18,857	19,365	19,656	19,898
Laboratory Specialists	1,420	1,427	1,432	1,404	1,405	1,418	1,440	1,444	1,443	1,432
Surgical Specialists	7,434	7,558	7,466	7,518	7,582	7,730	7,776	7,826	7,769	7,781
Medical Scientists	81	77	72	70	64	61	57	55	51	43
Years Since M.D. Graduation										
1 to 5	5,570	4,779	4,204	3,794	3,409	3,448	3,492	3,415	3,347	3,401
6 to 10	8,564	8,541	8,288	8,107	7,961	7,824	7,641	7,633	7,689	7,731
11 to 25	24,298	24,803	25,240	25,641	25,803	26,062	26,322	26,468	26,670	26,628
26 to 30	5,402	5,507	5,708	5,782	6,112	6,493	6,743	7,054	7,373	7,751
31 to 35	4,580	4,684	4,741	4,838	4,863	4,982	5,082	5,321	5,420	5,797
36+	6,598	6,611	6,746	6,744	7,030	7,308	7,571	7,825	7,913	7,849
Unknown	23	19	13	12	29	46	63	87	134	255
Place of M.D. Graduation										
Canadian										
Family Medicine	22,447	22,037	22,111	21,860	21,825	22,163	22,365	22,598	22,887	23,216
Specialists	18,779	19,219	19,372	19,724	20,121	20,666	21,205	21,774	22,131	22,490
Foreign										
Family Medicine	6,832	6,613	6,464	6,324	6,234	6,305	6,350	6,419	6,585	6,755
Specialists	6,954	7,056	6,979	6,995	6,994	6,977	6,924	6,914	6,785	6,652
Unknown										
Family Medicine	23	18	13	15	33	51	69	96	155	287
Specialists	0	1	1	0	0	1	1	2	3	12

(table continued on next page)

Table Phys-6. Summary of Physician Supply Characteristics, Canada, 1993–2002 (cont'd)

	1993	1994	1995	1996	1997	1998	1999	2000[1]	2001	2002[2]
MIGRATION										
Moving Interprovincially(*)										
Family Medicine	547	474	381	360	333	351	352	376	418	435
Specialists	306	296	294	306	326	393	442	378	496	434
Moved Abroad										
Family Medicine	259	363	361	370	330	253	182	165	172	145
Specialists	370	408	312	356	328	315	402	255	437	355
Returned from Abroad										
Family Medicine	92	105	98	92	82	132	112	94	138	103
Specialists	185	189	155	126	145	187	228	162	196	188

Source: SMDB/CIHI

Notes

Excludes residents and physicians who are not licensed to provide clinical practice and have requested to the Business Information Group (formerly Southam Medical Group) that their data not be published. Data as of December 31 of given year. Includes "active" physicians in clinical and/or non-clinical practice, including research, teaching or administration. "Active"on SMDB indicates that the physician has an M.D. and a valid mailing address. Family medicine includes uncertified specialists/general practitioners and family medicine and emergency family medicine specialist physicians. Specialty is based on most recent postgraduate specialty certification achieved within Canada. SMDB specialist counts do not include uncertified/foreign-certified specialist physicians and may, therefore, differ from other sources of provincial/territorial physician data that categorize physicians on some other basis (e.g. functional specialty, payment specialty, provisional license or other).

(*) Interprovincial migration is determined by comparing the province of residence of "active" physicians in the previous year with the province of residence of "active" physicians in the given year. Represents total volume of interprovincial migration (excluding residents) from all provinces/territories and is not comparable to net interprovincial data presented in other CIHI publications.

1. Alberta and Yukon data in 2000 does not reflect the annual update from the College of Physicians and Surgeons of Alberta and the Government of the Yukon, respectively (see Methodological Notes for details).
2. Ontario data in 2002 does not reflect four of twelve monthly updates (September—December, 2002) from the College of Physicians and Surgeons of Ontario (see Methodological Notes for details).

Table Phys-7. Number of Graduates of Canadian Medical Schools, by School of Graduation, Canada, 1993–2002

School	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.										
Memorial University	**51**	**55**	**63**	**54**	**55**	**57**	**59**	**60**	**59**	**59**
Males	31	25	33	28	20	26	29	33	27	31
Females	20	30	30	26	35	31	30	27	32	28
N.S.										
Dalhousie University	**83**	**86**	**83**	**85**	**81**	**87**	**81**	**90**	**88**	**87**
Males	48	56	47	41	46	42	39	49	43	41
Females	35	30	36	44	35	45	42	41	45	46
Que.										
Université Laval	**112**	**112**	**129**	**128**	**132**	**133**	**148**	**108**	**106**	**117**
Males	60	42	56	56	61	59	51	37	37	46
Females	52	70	73	72	71	74	97	71	69	71
Université de Sherbrooke	**94**	**97**	**92**	**101**	**91**	**96**	**90**	**87**	**84**	**91**
Males	40	38	38	30	27	40	37	40	24	36
Females	54	59	54	71	64	56	53	47	60	55
Université de Montréal	**158**	**158**	**178**	**158**	**161**	**154**	**148**	**160**	**142**	**137**
Males	68	62	78	59	61	67	53	57	60	44
Females	90	96	100	99	100	87	95	103	82	93
McGill University	**144**	**145**	**146**	**137**	**136**	**127**	**114**	**109**	**105**	**112**
Males	91	73	85	81	72	61	47	55	52	66
Females	53	72	61	56	64	66	67	54	53	46
Ont.										
University of Ottawa	**84**	**75**	**90**	**78**	**80**	**87**	**79**	**84**	**84**	**83**
Males	47	49	51	48	42	43	39	37	40	48
Females	37	26	39	30	38	44	40	47	44	35
Queen's University	**72**	**74**	**71**	**71**	**73**	**78**	**73**	**75**	**75**	**70**
Males	47	44	45	33	35	50	48	46	47	41
Females	25	30	26	38	38	28	25	29	28	29
University of Toronto	**248**	**242**	**253**	**242**	**174**	**167**	**181**	**167**	**175**	**164**
Males	172	163	156	149	102	102	102	104	99	86
Females	76	79	97	93	72	65	79	63	76	78
McMaster University	**102**	**90**	**100**	**100**	**89**	**107**	**97**	**103**	**93**	**101**
Males	26	36	40	34	27	45	31	37	28	41
Females	76	54	60	66	62	62	66	66	65	60
University of Western Ontario	**105**	**106**	**93**	**95**	**94**	**93**	**98**	**101**	**105**	**98**
Males	70	68	57	56	59	62	57	62	64	57
Females	35	38	36	39	35	31	41	39	41	41

(table continued on next page)

Table Phys-7. Number of Graduates of Canadian Medical Schools, by School of Graduation, Canada, 1993–2002 (cont'd)

School	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Man.										
University of Manitoba	**81**	**79**	**85**	**76**	**69**	**68**	**71**	**74**	**72**	**69**
Males	51	46	56	34	49	45	44	49	48	42
Females	30	33	29	42	20	23	27	25	24	27
Sask.										
University of Saskatchewan	**64**	**64**	**55**	**62**	**55**	**54**	**50**	**58**	**56**	**55**
Males	33	42	36	34	31	28	23	32	32	33
Females	31	22	19	28	24	26	27	26	24	22
Alta.										
University of Alberta	**117**	**121**	**111**	**113**	**112**	**103**	**108**	**105**	**108**	**104**
Males	83	80	65	66	61	59	70	58	69	62
Females	34	41	46	47	51	44	38	47	39	42
University of Calgary	**72**	**70**	**70**	**67**	**57**	**71**	**72**	**74**	**76**	**77**
Males	47	42	37	30	37	35	30	37	36	38
Females	25	28	33	37	20	36	42	37	40	39
B.C.										
University of British Columbia	**115**	**112**	**120**	**118**	**118**	**122**	**125**	**123**	**109**	**119**
Males	65	73	68	63	53	64	56	63	60	58
Females	50	39	52	55	65	58	69	60	49	61
Canada	1,702	1,686	1,739	1,685	1,577	1,604	1,594	1,578	1,537	1,543
Males	**979**	**939**	**948**	**842**	**783**	**828**	**756**	**796**	**766**	**770**
Females	**723**	**747**	**791**	**843**	**794**	**776**	**838**	**782**	**771**	**773**

Source: ACMC

Endnotes

Sources

Figure Phys-1. Calculated from data in Table Phys-3 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Southam Medical Database, Canadian Institute for Health Information

Figure Phys-2. Calculated from data in Table Phys-4.

Figure Phys-3. Calculated from data in Table Phys-5.

Figure Phys-4. Calculated from data in Table Phys-2.

Table Phys-1. Southam Medical Database, Canadian Institute for Health Information

Table Phys-2. Data calculated based on Table Phys-1 and population estimates from Statistics Canada shown in Appendix C.

Table Phys-3. Southam Medical Database, Canadian Institute for Health Information

Table Phys-4. Southam Medical Database, Canadian Institute for Health Information

Table Phys-5. Southam Medical Database, Canadian Institute for Health Information

Table Phys-6. Southam Medical Database, Canadian Institute for Health Information

Table Phys-7. Association of Canadian Medical Colleges (ACMC)

Physiotherapists

Definition

Physiotherapists, also known as physical therapists, are first contact, autonomous health professionals who analyze the impact of injury, disease or disorders on movement and function. Physiotherapists work in partnership with clients and others to define, achieve and maintain optimal health outcomes.

The unique contribution of physiotherapists to health care is directed at improving, restoring and maintaining functional independence and physical performance; preventing and managing pain, physical impairments, disabilities and limits to participation; and promoting fitness, health and wellness.

Responsibilities/Activities

Physiotherapists' practice is focused primarily on the musculoskeletal, neurological and cardiorespiratory systems, and includes but is not limited to: assessment, diagnosis and evaluation; working with clients to plan and carry out individually designed programs which could consist of therapeutic exercise, work hardening, manual therapy including manipulation, physical, electrotherapeutic and mechanical agents; education; consultation; service management; and research.

Practice Setting

Physiotherapists work with clients of all ages in a wide variety of private and public settings including private physiotherapy clinics, public out-patient clinics, hospitals, rehabilitation centres, sports facilities, home care programs, schools, long-term care facilities, community health centres, industry, government, university and research facilities. Many physiotherapists are self-employed.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) and regulatory/licensing authorities (membership is a condition of employment) across Canada as the primary source of physiotherapy data.

Secondary Data Source: This publication utilizes additional data from two survey sources (Labour Force Survey/Statistics Canada and Census/Statistics Canada). Both Census and LFS estimates are based on the Standard Occupational Classification D042 Physiotherapists.

Regulatory Environment

- Physiotherapists must be registered with a provincial licensing authority as condition of employment. All provinces had regulatory legislation in place prior to 1993.
- The Yukon Territory is developing the regulations to accompany the physiotherapy legislation that has been approved.

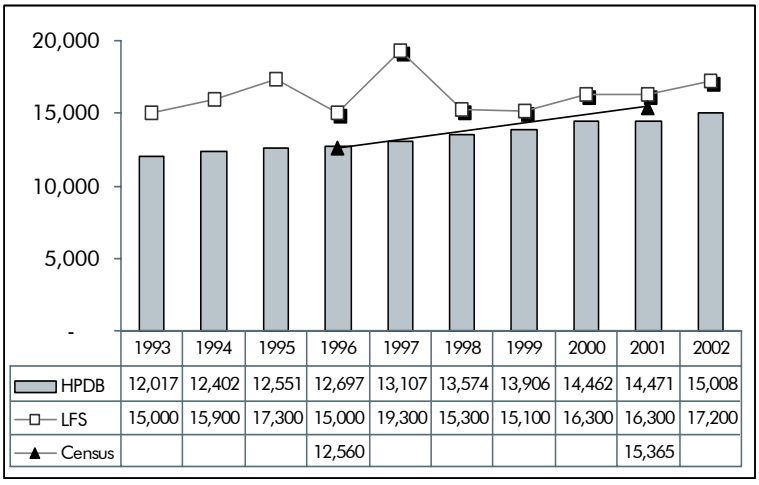
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1970	1973	1959	1960	1973	1953	1956	1945	1985	1946	NR	..	..

.. Information not available.
NR = Not Regulated as of 2002.

Supply Trends

- Between the common comparable years of 1996 and 2001, HPDB counts of active registered physiotherapists increased 14.0%, the Census estimates of employed physiotherapists in the workplace in Canada increased 22.3% and the Labour Force Survey (LFS) estimates increased 8.7% (see Figure Physio-1).
- Census estimates of employed physiotherapists in the workplace in Canada were 1.1% lower in 1996 and 6.2% higher in 2001. LFS estimates are higher than HPDB over the same period: 18.1% higher than HPDB in 1996 and 12.6% higher in 2001. Year-over-year trends in LFS do not follow the year-over-year trends in HPDB data. For most years, the LFS and Census survey estimates of employed physiotherapists fall somewhat above the HPDB data.

Figure Physio-1. Number of Physiotherapists from Selected Data Sources, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	12,017	12,402	12,551	12,697	13,107	13,574	13,906	14,462	14,471	15,008
LFS	15,000	15,900	17,300	15,000	19,300	15,300	15,100	16,300	16,300	17,200
Census				12,560					15,365	

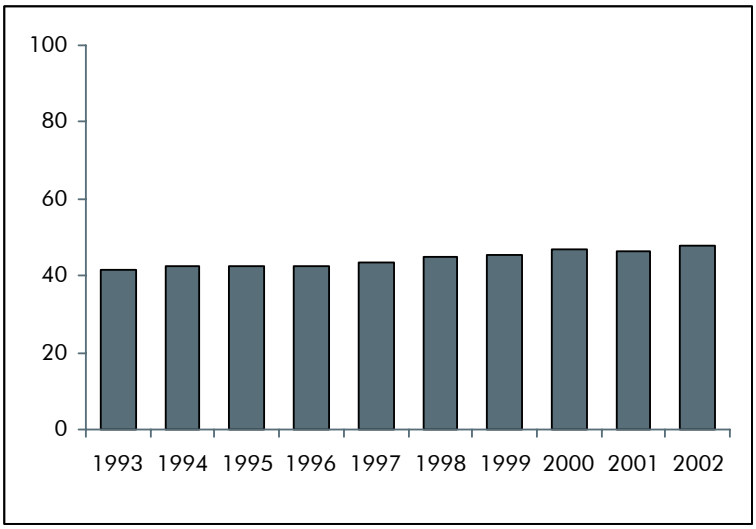
Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

- As shown in Figure Physio-1 and Table Physio-1, the number of active registered physiotherapists, as indicated in the HPDB, has increased steadily from 1993 to 2002. This represents a 24.9% increase in the number of active registered physiotherapists over this ten-year period.
- Table Physio-3 shows the distribution of registered physiotherapists by province from 1993 to 2002. All provinces experienced an increase, however, the largest percentage increases over this ten-year period have occurred in Prince Edward Island (60.6%) and Saskatchewan (54.3%).

Growth in Supply Relative to Population

- The rate of increase of physiotherapists has been greater than the population growth rate, resulting in a higher number of physiotherapists per 100,000 population across Canada. The number of active registered physiotherapists per 100,000 population rose 14.6% from 41.7 in 1993 to 47.8 in 2002 (see Figure Physio-2). Over this same time period the Canadian population increased by 9.1%.
- Table Physio-2 shows in 2002 the highest number of active registered physiotherapists per 100,000 population was in British Columbia (56.7).
- Given the relative stability in graduates over the past 5 years, the net increase may have been caused by a combination of an increase in immigration and return to the profession (see Table Physio-4 for the number of physiotherapy graduates).

Figure Physio-2. Number of Active Registered* Physiotherapists per 100,000 Population, Canada, 1993–2002



Source: HPDB/CIHI

* This data includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

Accessing Personnel**

- Although physiotherapists in all provinces are direct access, first contact professionals and do not require a referral for services to be accessed, there are some exceptions to this depending on the environment within which the physiotherapist is employed. These exceptions include:
  - In many provinces legislation concerning public hospitals require physician referral to access other services within the hospitals or institutions.
  - In the case of some extended health, disability or worker's compensation insurers, a physician referral may be required to access physiotherapy benefits.
  - While a prescribed referral is not required to access services except in most hospitals or institution based services, the main method for introduction of physiotherapy services is the recommendation by physicians, mostly family physicians in the community.
  - Other health professionals also recommend physiotherapy services to their clients as appropriate.
  - Increasingly, Canadians are aware of the benefits of physiotherapy services, which has resulted in more individuals referring themselves, family or friends directly to physiotherapy services.

Factors That May Influence Demand for Personnel**

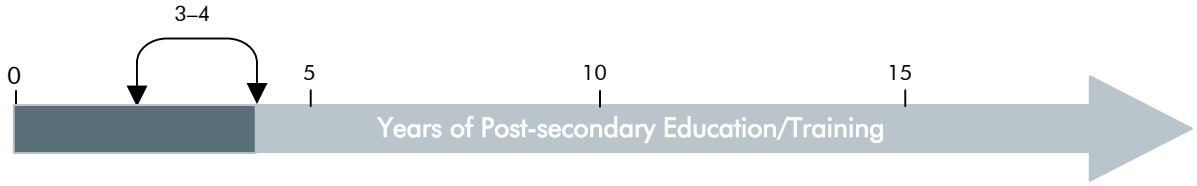
- A major shift in health services delivery models from institutional care to ambulatory and community care.
- Pressure to discharge patients earlier, results in need for physiotherapy care to improved functional independence and physical performance.
- The increased expectations of Canadians concerning mobility and function as they age and continue a more active lifestyle.
- An increased interest of employers in supporting early return to work (i.e. post injury).
- An increase in the number of patients with chronic and complex multi-system disorders due to an aging population and advances in health care.
- Growing private practice sector with approximately 41% of physiotherapists in 2001 reporting private practice as their main employer up from 20% in the mid 80's.
- Continued vacancies for physiotherapists in both the private and public sectors in rural, remote, and urban settings across Canada.
- Growing awareness of public and health planners' awareness of the benefits of physiotherapy.

What Else Do We Know?

- The average age of physiotherapists increased from 36 to 39 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- As of 2001, 80% of physiotherapists were women (Source: Census Data, Statistics Canada).

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Alliance of Physiotherapy Regulators (see Appendix B for the survey tool).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
3	Baccalaureate degree in Physical Therapy/Physiotherapy (B.M.R. PT, B.Sc. PT)* – University of Saskatchewan, (two years of university prerequisite) – University of Manitoba, (one year of university prerequisite) – McGill University, (two years of CEGEP pre-requisite) – University of Montréal, (two years of CEGEP prerequisite) – Laval University, (two years of CEGEP prerequisite) – Dalhousie University, (one year of university prerequisite) **These programs have a prerequisite of a minimum of one to two years of college (CEGEP)/university education with specific subject prerequisites.*
4	B. Sc. PT – University of Ottawa
	Professional Master's or Clinical Master's, M PT, MSc PT ** is offered by the following institutions: – University of Alberta – University of Western Ontario – University of Toronto – McMaster University – Queen's University (currently baccalaureate, Master's starting in 2004) – University of British Columbia (currently baccalaureate, planning Master's starting in 2004) ***These programs have a prerequisite of completion of related health sciences Baccalaureate degree.*

- For physiotherapists, an undergraduate degree as indicated in the table above, is currently the accepted entry-to-practice in most provinces (i.e. British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador). In addition to this the provincial/territorial regulators require completion of a two-part national competency examination, consisting of both written and clinical components.
- For more information on practice requirements, please visit the Canadian Physiotherapy Association (www.physiotherapy.ca), and the Canadian Alliance of Physiotherapy Regulators (www.alliancept.org).

Changes to Education and/or Training Requirements

- There is an anticipated change to move the minimum entry-level educational credentials for physiotherapists from a Baccalaureate level to a Professional Master's by 2010. The change will impact all 13 education programs offering physiotherapy education in Canada. For further information please contact the National Physiotherapy Advisory Group (www.physiotherapy.ca).

Possible Areas of Certified Specialization

- Currently there are no areas of certified specialization of physiotherapists, however, many physiotherapists focus their practice in such areas as: Cardiorespiratory, Neurosciences, Orthopaedics, Paediatrics, Seniors' Health, Sport Physiotherapy, and Women's Health.
- The options for the development of the certified specialization are under investigation by the national professional association (i.e. Canadian Physiotherapy Association). Also, the options for the future recognition of certified specialization is under investigation by some provincial/territorial regulators.

What's Happening?

Listed are references to key research documents relating to physiotherapy that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. Canadian Alliance of Physiotherapy Regulators and the Canadian Physiotherapy Association for Health Canada, *Physiotherapy Health Human Resources: Background Paper*. http://www.physiotherapy.ca/hhrp.htm.
2. Gouvernement du Québec, ministère de la Santé et des Services sociaux, *Planification de la main-d'oeuvre dans le secteur de la réadaptation physique*, Juillet 2002.
3. Manitoba Branch, Canadian Physiotherapy, *Physiotherapy in Manitoba*, August 2000, http://www.physiotherapy.ca/physinman.htm.
4. Canadian Alliance of Physiotherapy Regulators, Canadian Physiotherapy Association, Canadian University Physical Therapy Academic Council, *Competency Profile for the Entry-Level Physiotherapist in Canada*, April 1998.
5. Canadian Alliance of Physiotherapy Regulators and the Canadian Physiotherapy Association, *Competency Profile: Essential Competencies of Physiotherapist Support Workers in Canada*, July 2002.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Alliance of Physiotherapy Regulators (see Appendix B for the survey tool).

6. A. Kazanjian, S. Rahim-Jamal, A. MacDonald, A. Chen. *The Rehabilitation Workforce Study: Supply Side Analysis*. Health Human Resources Unit, Centre for Health Services and Policy Research. The University of British Columbia, 2001.

7. Canadian Alliance of Physiotherapy Regulators. *Labour mobility of physiotherapists*. Toronto ON, Canadian Alliance of Physiotherapy Regulators, 2000.

8. Anne Marie Atkinson, Sonya Hull for Prince Edward Island Advisory Committee on Health Human Resources, *Health Human Resources Supply and Demand Analysis: Executive Summary*, November 16, 2001, http://www.gov.pe.ca/photos/original/hss_nov162001_b.pdf.

Research in Progress

1. Essential Competency Profile for Physiotherapists, Canadian Alliance of Physiotherapy Regulators, corporateservices@alliancept.org, Susan Glover Takahashi, (416) 234-8800.

2. National Rehabilitation Health Human Resource Invitational Workshop, Toronto ON May 3, 2003, Dr. Lyn Jongbloed, lynjon@interchange.ubc.ca.

Data Tables

Table Physio-1. Number of Active Registered Physiotherapists* by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	136	159	167	164	151	180	187	199	198	192
P.E.I.	33	35	44	48	39	47	45	47	50	53
N.S.	333	340	352	373	409	422	409	436	449	485
N.B.	*281* [2]	300	312	290	315	367	361	377	363	397
Que.	2,500	*2,642* [2]	*2,771* [2]	*2,865* [2]	2,920	2,964	2,995	3,200	3,210	3,304
Ont.	4,447	4,571	4,685	4,727	*4,743* [3]	4,953	5,087	5,210	5,223	5,520
Man.[1]	431	445	452	448	458	462	479	519	505	552
Sask.	350	385	407	408	457	491	504	521	524	516
Alta.	1,451	1,422	1,268	1,281	1,377	1,430	1,510	1,632	1,643	1,634
B.C.	*2,026* [2]	2,103	2,093	2,093	2,238	2,258	2,329	2,321	2,306	2,355
Y.T.	16	..	..	..	..	..	..	..	..	..
N.W.T.	14	..	..	..	..	..	..	..	..	..
Canada	*12,017*	*12,402*	*12,551*	*12,697*	*13,107*	13,574	13,906	14,462	14,471	15,008

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized* cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

.. Information not available.

1. Some physiotherapists may be practicing in two or more provinces. All physiotherapists working in Manitoba are residents of the province.
2. CIHI estimate.
3. Estimate.

Table Physio-2. Number of Active Registered Physiotherapists* per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	23.6	27.8	29.6	29.4	27.5	33.1	34.6	37.1	37.1	36.1
P.E.I.	24.8	26.0	32.5	35.2	28.5	34.2	32.6	34.0	35.9	37.8
N.S.	36.0	36.7	37.9	40.0	43.7	45.0	43.4	46.2	47.6	51.3
N.B.	*37.4*	39.9	41.5	38.5	41.8	48.7	47.7	49.9	48.1	52.5
Que.	34.8	*36.6*	*38.2*	*39.3*	39.9	40.4	40.7	43.3	43.2	44.3
Ont.	41.4	42.0	42.5	42.3	*41.9*	43.3	43.9	44.2	43.7	45.6
Man.	38.5	39.5	40.0	39.5	40.3	40.6	41.9	45.2	44.0	48.0
Sask.	34.7	38.0	40.0	40.0	44.7	47.8	49.2	51.1	51.7	51.1
Alta.	54.0	52.3	46.0	45.7	48.0	48.8	50.7	53.8	53.2	52.2
B.C.	*55.8*	56.3	54.6	53.3	56.2	56.3	57.6	56.9	56.0	56.7
Y.T.	53.3	..	..	..	..	..	..	..	..	..
N.W.T.	34.7	..	..	..	..	..	..	..	..	..
Canada	*41.7*	*42.6*	*42.6*	*42.7*	*43.6*	44.9	45.5	46.9	46.5	47.8

Source: HPDB/CIHI

Notes

See Table Physio-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratio in Table Physio-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

.. Information not available.

Table Physio-3. Number of Registered Physiotherapists* by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	142	164	170	177	154	180	187	199	198	192
P.E.I.	33	35	44	49	42	50	45	47	50	53
N.S.	373	374	382	401	411	424	453	458	471	497
N.B.	350	319	321	344	368	386	392	411	393	437
Que.	2,679	2,661	2,797	2,943	3,003	3,077	3,212	3,370	3,439	3,554
Ont.	4,918	4,894	4,977	5,051	5,100	5,264	5,371	5,486	5,649	5,921
Man.	476	448	457	483	498	495	519	545	558	599
Sask.[1]	350	385	407	414	457	491	504	521	524	540
Alta.	1,589	1,600	1,595	1,610	1,691	1,718	1,778	1,829	1,883	1,867
B.C.	2,007	2,398	2,451	2,368	2,558	2,607	2,658	2,649	2,678	2,599
Y.T.	16	..	..	..	..	..	..	..	..	..
N.W.T.	16	..	..	..	..	..	..	..	..	..
Canada	**12,949**	**13,278**	**13,601**	**13,840**	**14,282**	**14,692**	**15,119**	**15,515**	**15,843**	**16,259**

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized cells* in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

.. Information not available.

1. Prior to 2001, Saskatchewan does not differentiate between active and inactive (may or may not be working) registered.

Table Physio-4. Number of Graduates of B.Sc. Programs for Physiotherapy by School of Graduation, Canada, 1993–2002

School	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.S.										
Dalhousie University	47	47	49	45	48	48	48	45	46	49
Que.	**173**	**191**	**195**	**191**	**172**	**105**	**157**	**168**	**172**	**155**
McGill University	76	78	71	77	49	48	56	52	53	52
Université de Montréal	45	54	59	56	56	49	48	58	53 [3]	57 [3]
Université Laval	52	59	65	58	67	8 [1]	53	58	66	46
Ont.	**187**	**216**	**262**	**278**	**259**	**324**	**253**	**255**	**278**	**282**
University of Ottawa	27	25	43	48	36	40	35	36	63	62
Queen's University	22	32	38	42	46	40	38	39	39	45
University of Toronto	76	69	71	67	63	120 [2]	63	64	63	62
McMaster University	30	29	51	61	56	60	59	59	56	50
University of Western Ontario	32	61	59	60	58	64	58	57	57 [4]	63
Man.										
University of Manitoba	28	31	29	32	31	28	33	29	30	31
Sask.										
University of Saskatchewan	29	32	29	28	29	30	30	32	30	30
Alta.										
University of Alberta	67	66	66	66	61	62	63	61	67	63
B.C.										
University of British Columbia	36	34	35	34	36	36	36	32	41	34
Canada	**567**	**617**	**665**	**674**	**636**	**633**	**620**	**622**	**664**	**582**

Source: HPDB/CIHI

Notes

1. Program credits changed from 96 to 106.
2. Graduated two classes (one from the classic 4-year curriculum and the other from the evidence-based 3-year curriculum).
3. Université de Montréal 2001 data includes two M.Sc. grads, 2002 data includes four M.Sc. grads.
4. University of Western Ontario includes four M.Sc. grads.

Endnotes

Sources

Figure Physio-1. Calculated from data in Table Physio-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure Physio-2. Calculated from data in Table Physio-2.

Table Physio-1. 1993–1999: Physiotherapists of Manitoba, Newfoundland and Labrador College of Physiotherapists, Prince Edward Island College of Physiotherapists, Nova Scotia College of Physiotherapists, College of Physiotherapists New Brunswick, Ordre professionel de la physiothérapie du Québec, College of Physiotherapists of Ontario, Saskatchewan College of Physical Therapists, College of Physical Therapists of Alberta, College of Physical Therapists of British Columbia

2000–2002: Canadian Alliance of Physiotherapy Regulators

Table Physio-2. Data calculated based on Table Physio-1 and population estimates from Statistics Canada shown in Appendix C.

Table Physio-3. 1993–1999: Physiotherapists of Manitoba, Newfoundland and Labrador College of Physiotherapists, Prince Edward Island College of Physiotherapists, Nova Scotia College of Physiotherapists, College of Physiotherapists New Brunswick, Ordre professionel de la physiothérapie du Québec, College of Physiotherapists of Ontario, Saskatchewan College of Physical Therapists, College of Physical Therapists of Alberta, College of Physical Therapists of British Columbia.

2000–2002: Canadian Alliance of Physiotherapy Regulators

Table Physio-4. Individual universities (McGill University, University of Montreal, Laval University, University of Ottawa, Queen's University, McMaster University, University of Western Ontario, University of Toronto, University of Manitoba, Dalhousie University, University of British Columbia, University of Alberta, University of Saskatchewan) and Statistics Canada.

Psychologists

Definition

Psychologists are licensed provincially/territorially to assess, diagnose and treat psychological problems and mental illnesses. Psychology is the study of the biological, cognitive, emotional, social, cultural and environmental determinants of behaviour. In other words, how people think, feel and behave in their social and physical environments.

Responsibilities/Activities

Psychologists' professional activities include gathering information from interviews and psychological tests for assessment or diagnosis; treating patients and clients with psychological problems and mental illnesses; consulting to other professionals concerning clients' needs and treatments; conducting research to learn more about basic human functioning and to determine best practices; planning, developing, directing, administrating and evaluating programs or services; supervising psychological and non-psychological staff in the delivery of services; and participating in the education and training of psychologists and other professionals and paraprofessionals.

Practice Setting

Psychologists provide services, teach and/or conduct research in hospitals, community clinics, private practices, universities, schools, criminal justice settings, social welfare agencies, workplace employee assistance programs, rehabilitation programs, workers compensation boards, etc. Psychological services are provided across the continuum of care, which includes wellness, injury and illness prevention, diagnosis and treatment, rehabilitation and relapse prevention, chronic disease and disability management, and palliative care.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from the regulatory/licensing authorities across Canada as the primary source of psychologist data.

Secondary Data Source: Both Census and Labour Force Survey estimates are based on the 1991 Standard Occupational Classification E021 Psychologists.

Regulatory Environment

- As of 2002, all provinces had legislation that (effectively) made registration with a provincial licensing authority a condition of employment as a psychologist.

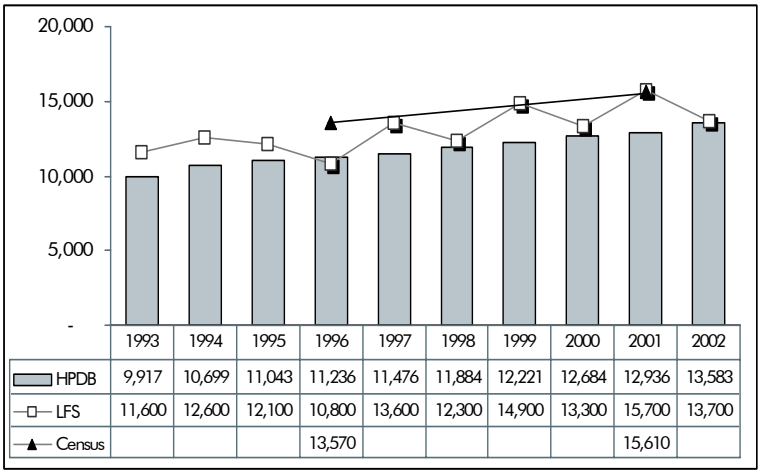
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1988	1991	1982	1967	1962	1960	1966	1997	1960	1977	NR	REG	REG

NR = Not regulated.
REG = Regulated in 2002 but initial year of regulation is unknown

Supply Trends

- Figure Psych-1 illustrates that during the common comparable years of 1996 and 2001, HPDB counts of active registered psychologists increased 15.1%, the Census estimates of employed psychologists in the workplace in Canada increased 15.0% and the Labour Force Survey (LFS) estimate increased 45.4%.
- Census estimates of employed psychologists in the workplace in Canada were approximately 21% higher than HPDB in both 1996 and 2001. LFS estimates are 3.9% lower than HPDB in 1996 and 21.4% higher in 2001. LFS estimates did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002.

Figure Psych-1. Number of Psychologists from Selected Data Sources, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	9,917	10,699	11,043	11,236	11,476	11,884	12,221	12,684	12,936	13,583
LFS	11,600	12,600	12,100	10,800	13,600	12,300	14,900	13,300	15,700	13,700
Census				13,570					15,610	

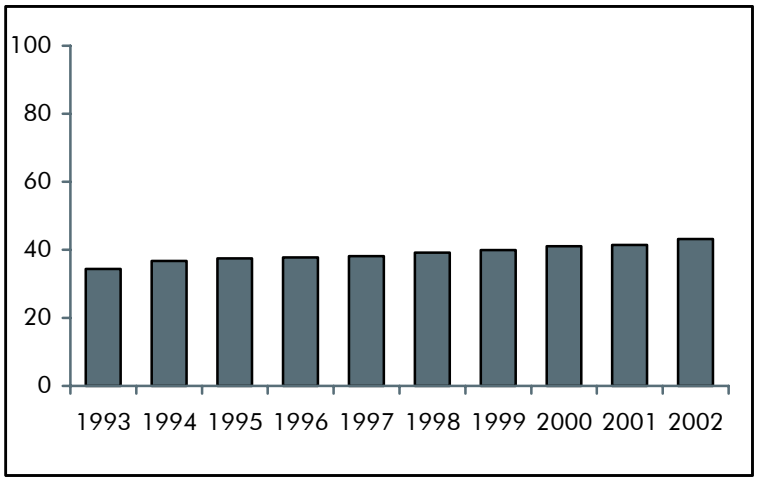
Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

- The number of active registered psychologists (see HPDB data in Figure Psych-1 and Table Psych-1) has increased steadily from 1993 to 2002. This represents a 37.1% increase in the number of active registered psychologists over this ten-year period. As a result of the regulatory changes in Saskatchewan (2002) and more importantly, the considerable amount of estimates found in the early years of HPDB psychologist data, observed trends should be interpreted cautiously.

Growth in Supply Relative to Population

- Data from HPDB indicates that the number of psychologists per 100,000 population in Canada, changed from 34.4 in 1993 to 43.2 in 2002 (see Figure Psych-2). This would suggest that the rate of increase (25.6%) of psychologists as reported in HPDB has been greater than the population growth rate (9.1%), resulting in a higher number of psychologists per 100,000 population across Canada. However, because of the noted data limitations (changes in regulation in Saskatchewan and the availability of only estimated data for some provinces/ territories in the earlier years) these figures may overstate the level of change in the number of psychologists relative to the population.

Figure Psych-2. Number of Active Registered Psychologists* per 100,000 Population, Canada, 1993–2002



Source: HPDB/CIHI

* This data includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

Accessing Personnel**

- Psychologists work in private practice and public systems such as hospitals and clinics, criminal justice settings, schools, social welfare agencies and employee assistance programs. Services provided by psychologists can be similar or different across these systems.
- The primary drivers for psychologist services are self-referral by patients or their guardians. Other types of referrals include court ordered referrals and professional referrals from the following areas/professionals: health (physicians); school (teachers or vice principals); criminal justice (administration or parole board); social welfare (case workers or administration); and employee assistance program (nurses or plan administrators).

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Psychological Association (see Appendix B for the survey tool).

Factors That May Influence Demand for Personnel**

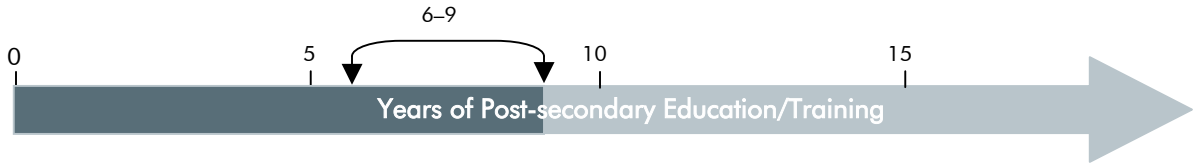
- A broader understanding and utilization of psychological services outside of mental illness and addictions (e.g. chronic disease, heart disease, cancer) by the public, governments, third party insurance companies and referring professionals.
- Funding models that make psychological services more accessible to middle and lower income Canadians.
- An emphasis on early intervention for school aged children addressing, for example, learning difficulties and disabilities, mental health issues and the psychological factors associated with significant health and family problems.

What Else Do We Know?

- The average age of psychologists increased from 40 to 45 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- In 2001, the majority of individuals in the psychology profession were female (67%) (Source: Census Data, Statistics Canada).

**Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Psychological Association (see Appendix B for the survey tool).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
Honours undergraduate degree in psychology: 4 years Masters degree in psychology: minimum 2 years	Minimum standard: Alberta, Saskatchewan, Quebec, New Brunswick, Nova Scotia, Newfoundland and Labrador and Northwest Territories: masters degree which includes both classes and supervised practice. Prince Edward Island: masters degree for institutional practice (e.g. hospital, school) and doctoral degree for independent private practice.
Honours undergraduate degree in psychology: 4 years Doctoral degree in psychology: minimum 5 years	Minimum standard: British Columbia, Manitoba, Ontario: doctoral degree which includes classes, supervised practice and a one year internship for those programmes accredited by the Canadian Psychological Association. Ontario and British Columbia register masters degree providers as Psychological Associates.
	Registration requirements are different in each province. In all provinces except Quebec, one must write a professional practice examination, be examined on ethics and jurisprudence and be supervised by a licensed psychologist for a period of time.

- Psychology education/training does not take place in a finite number of professional schools as is the case with many of the other health professions. Psychologists graduate with masters and doctoral degrees from psychology departments in universities. There is not at present a systematic method of tracking graduates from masters and doctoral programs in psychology in Canada.

Changes to Education and/or Training Requirements

- Some anticipated changes are to the provincial registration requirements in order to comply with the demands of the Agreement on Internal Trade. These will include, for example, the registration/licensure of master's degree psychologist in those provinces that previously only registered/licensed doctoral psychologists.

Possible Areas of Practice (Specialization)

- Clinical
- Counselling
- School
- Industrial/Organizational
- Neuropsychology
- Developmental
- Criminal Justice

What's Happening?

Listed are references to key research documents relating to psychologists that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *The Cost-Effectiveness of Psychological Interventions*, Canadian Psychological Association (2002) http://www.cpa.ca/documents/Cost-Effectiveness.pdf
2. *Costs and Cost-Offsets of Psychological Interventions*, British Columbia Psychological Association (2002) http://www.cpa.ca/BCPA_Brief.pdf
3. *Putting Human Behaviour at the Heart of Health Care in Canada*, Canadian Psychological Association, (2002) http://www.cpa.ca/CPA_brief.pdf
4. *Geographic Locations Survey of Registered Psychologists in Canada*, Canadian Psychological Association (1999), http://www.cpa.ca/documents/geographic_survey.html
5. *A Profile of Canadian Consumers of Psychological Services*, John Hunsley, Tim Aubrey and Catherine Lee (1997) http://www.cpa.ca/documents/Hunsley_report.html
6. *Strengthening Medicare*, Canadian Psychological Association (1999) http://www.cpa.ca/medicare.pdf.
7. *Strengthening Primary Care*, Canadian Psychological Association (2002) http://www.cpa.ca/primary.pdf.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Psychological Association (see Appendix B for the survey tool).

8. *Strengthening Pharmacare*, Canadian Psychological Association (2001) http://www.cpa.ca/pharmacare.pdf

9. *Strengthening Home and Community Care*, Canadian Psychological Association (2001) http://www.cpa.ca/homecare.pdf

10. *Strengthening Rural Health*, Canadian Psychological Association (2002) http://www.cpa.ca/rural.pdf.

Research in Progress

- Information on planned health human resources related research activities is available from the Canadian Psychological Association (www.cpa.ca).

Data Tables

Table Psych-1. Number of Active[1] Registered Psychologists* by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	*27* [3]	*28* [3]	*29* [3]	*30* [3]	*31* [3]	185	186	195	210	221
P.E.I.	13	14	14	15	15	19	22	21	22 [11]	28 [11]
N.S.[7]	210	287	290	297	310	331	350	369	383	414
N.B.	*195* [3]	*202* [3]	*209* [3]	*215* [3]	*219* [3]	241	186	256	213	265 [2]
Que.	5,112	5,320	5,486	5,602	5,671	5,728	5,898	6,076	6,271	6,455
Ont.[9]	2,023	2,092	2,176	2,190	2,281	2,369	2,501	2,575	2,665	2,740
Man.	*136* [3]	*141* [3]	*146* [3]	*150* [3]	*153* [3]	140	149	156	156	160
Sask.[4]	*75* [3]	*77* [3]	*71* [3]	*76* [3]	*70* [3]	*70*	*73* [3]	74	*73* [3]	387 [5]
Alta.[6]	1,224 [2]	1,619	1,647	1,642	1,671	1,712	1,768	1,833	1,930	1,892
B.C.	871	886	937	977	1,010	1,043	1,035	1,068	934	939
Y.T.[8]	*7* [3]	*8* [3]	*8* [3]	*8* [3]	*8* [3]	*8* [3]	*8* [3]	*8* [3]	*8* [3]	*8* [3]
N.W.T.[10]	24	25	30	34	37	38	45	53	71	74
Canada	***9,917***	***10,699***	***11,043***	***11,236***	***11,476***	***11,884***	***12,221***	***12,684***	***12,936***	***13,583***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized cells* in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

1. "Active" refers to self-employed, or employed by agencies, e.g. hospitals or clinics. Excluded are students, foreign affiliates, retired, abroad and honorary members (exceptions are footnoted). Some psychologists are employed outside the health field.
2. Estimate.
3. CIHI estimate.
4. Saskatchewan data 1993–2001 includes only doctoral level psychologists and may undercount the number of practicing psychologists in Saskatchewan.
5. Saskatchewan data for 2002 includes both master's and doctoral level psychologists.
6. Alberta data for 1994 to 2002 include active and inactive (may or may not be employed).
7. Nova Scotia data for 1993 to 2002 include active and inactive (may or may not be employed).
8. The Yukon is not a regulated territory.
9. Ontario 1994–1995 data as of July 1; 1996–1999 data as of September; 2000–2001 data as of October; 2002 data as of May 31.
10. Data as of March 31.
11. Prince Edward Island 2001–2002 data as of November 1, and includes five people who are employed outside the province.

Table Psych-2. Number of Active Registered Psychologists per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	*4.7* [1]	*5.0* [1]	*5.2* [1]	*5.4* [1]	*5.6* [1]	*34.1*	*34.4*	*36.4*	*39.4*	*41.6*
P.E.I.	9.8	10.4	10.3	11.0	11.0	13.8	15.9	15.2	15.8	20.0
N.S.	22.7	31.0	31.2	31.8	33.1	35.3	37.1	39.1	40.6	43.8
N.B.	*26.0* [1]	*26.9* [1]	*27.8* [1]	*28.5* [1]	*29.1* [1]	*32.0*	*24.6*	*33.9*	*28.2*	*35.0*
Que.	71.1	73.6	75.6	76.8	77.5	78.1	80.1	82.2	84.3	86.5
Ont.	18.8	19.2	19.7	19.6	20.2	20.7	21.6	21.9	22.3	22.6
Man.	*12.2* [1]	*12.6* [1]	*12.9* [1]	*13.2* [1]	*13.5* [1]	*12.3*	*13.0*	*13.6*	*13.6*	*13.9*
Sask.	*7.4* [1]	*7.6* [1]	*7.0* [1]	*7.4* [1]	*6.8* [1]	*6.8*	*7.1* [1]	*7.3*	*7.2* [1]	*38.3*
Alta.	45.5	59.5	59.7	58.5	58.3	58.4	59.3	60.4	62.5	60.5
B.C.	24.0 [1]	23.7	24.4	24.9	25.3	26.0	25.6	26.2	22.7	22.6
Y.T.	*24.5* [1]	*25.1* [1]	*25.0* [1]	*25.1* [1]	*25.8* [1]	*25.8* [1]	*26.1* [1]	*26.5* [1]	*26.6* [1]	*26.9* [1]
N.W.T.	59.5	60.7	72.1	81.6	89.3	92.9	109.8	129.2	172.4	178.6
Canada	***34.4***	***36.7***	***37.5***	***37.7***	***38.1***	***39.2***	***39.9***	***41.1***	***41.4***	***43.2***

Source: HPDB/CIHI

Note

See Table Psych-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratios in Table Psych-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Endnotes

Sources

Figure Psych-1. Calculated from data in Table Psych-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure Psych-2. Calculated from data in Table Psych-2.

Table Psych-1. Newfoundland Board of Examiners in Psychology, Prince Edward Island Psychologists Registration Board, Nova Scotia Board of Examiners in Psychology, College of Psychologists of New Brunswick, College of Psychologists of Ontario, Ordre des psychologues du Québec, Psychological Association of Manitoba, College of Alberta Psychologists, College of Psychologists of British Columbia, Department of Health and Social Services, Government of the Northwest Territories, Saskatchewan College of Psychologists.

Table Psych-2. Data calculated based on Table Psych-1 and population estimates from Statistics Canada shown in Appendix C.

Registered Nurses

Definition

Registered Nurses (RNs) are regulated health care professionals. They work in different domains of nursing practice including direct care (clinical), education, administration, and research.

Responsibilities/Activities

RNs duties include planning, implementing, and evaluating care/programs on the basis of the nursing assessment. They play a key role in illness prevention, health promotion, as well as treating health conditions and assisting clients, families and communities throughout the life cycle. Within the collaborative health care team environment, registered nurses work autonomously. Some of the areas of responsibility include medicine, surgery, obstetrics care, psychiatric care, critical care, paediatrics, geriatrics, community health, occupational health, emergency care, health promotion, rehabilitation and oncology.

Practice Setting

RNs are employed in a variety of practice settings including institution and community based environments such as hospitals, nursing homes, extended-care facilities, rehabilitation centres, clinics, community health centres, home care agencies, education and research facilities, private companies, government, and doctors' offices. They may also be self-employed.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from the Registered Nurses Database/CIHI (RNDB) as the primary source of registered nursing data.

Secondary Data Source: Both Census and Labour Force Survey estimates are based on the 1991 Standard Occupational Classification D111 Head Nurses and Supervisors + D112 Registered Nurses (please note that the occupation Registered Psychiatric Nurse is included in D112).

Visit www.cihi.ca for more information.

Regulatory Environment

- As of 1994, all provinces/territories had legislation making registration with a provincial/territorial regulatory body a condition to practice in that province/territory and to use the title "registered nurse".
- New regulation is being introduced at the provincial/territorial level in regards to the role of the nurse practitioner. More information is available from the provincial/territorial authorities for registered nursing.

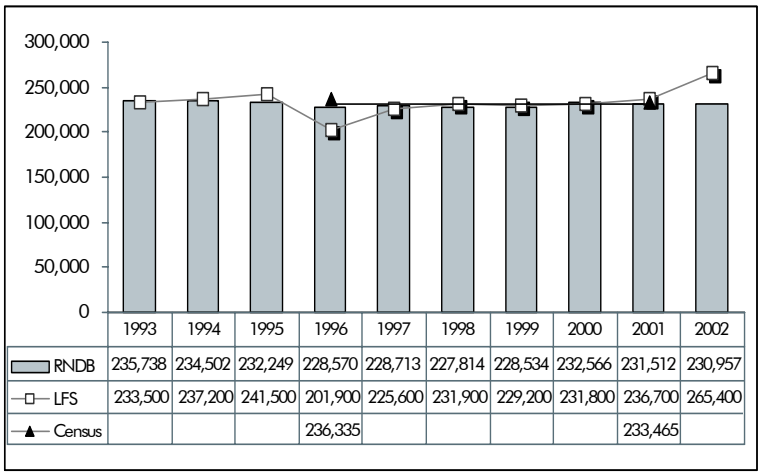
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1954	1949	1985	1984	1946	1922	1913	1967	1983	1918*	1994	1973	1973

*In 1918, the Registered Nusres Act was enabled.
In 1988, it became mandatory to register with RNABC in order to practice as a registered nurse.

Supply Trends

- During the common comparable years of 1996 and 2001, RNDB counts of registered nurses (RNs) employed in nursing increased 1.3%, the Census estimates of employed RNs in the workplace in Canada decreased 1.2% and the Labour Force Survey (LFS) estimate increased 17.2%.
- Census estimates of employed RNs in the workplace in Canada were 3.4% higher than RNDB in 1996 and <1% higher in 2001. LFS estimates were 11.7% lower than RNDB in 1996 and 2.2% higher in 2001. LFS estimates did not follow the general trend exhibited in the RNDB data over the period, 1993 to 2002.
- RNDB data in Figure RN-1 and Table RN-1 show that the number of RNs decreased by 2.0% from 1993 to 2002.

Figure RN-1. Number of Registered Nurses from Selected Data Sources, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
RNDB	235,738	234,502	232,249	228,570	228,713	227,814	228,534	232,566	231,512	230,957
LFS	233,500	237,200	241,500	201,900	225,600	231,900	229,200	231,800	236,700	265,400
Census				236,335					233,465	

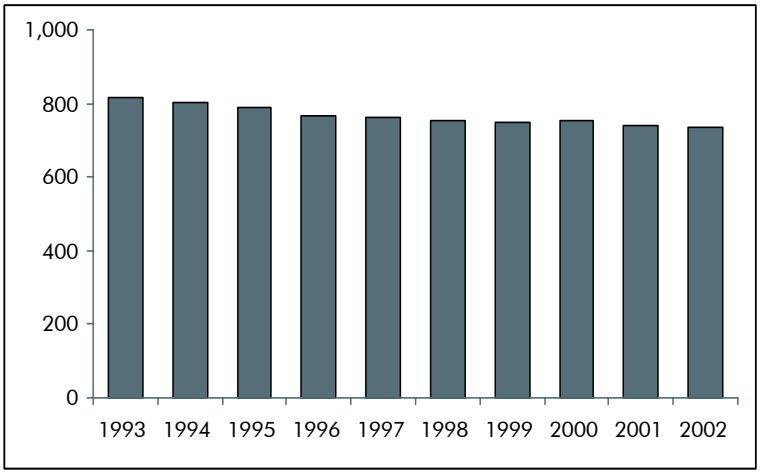
Sources: RNDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

- Table RN-1 shows the distribution of RNs by province/territory from 1993 to 2002. The number of RNs employed in nursing decreased in all provinces except for Alberta (7.1%), Newfoundland and Labrador (5.8%), Prince Edward Island (3.7%), and British Columbia (1.9%), where there was positive growth over this ten-year period.

Growth in Supply Relative to Population

- Since 1993, the size of the RN workforce has remained relatively stable. But combined with steady population growth during this period, Canada now has fewer RNs per 100,000 population. The number of RNs per 100,000 in Canada decreased 10.3% from 818.2 in 1993 to 734.2 in 2002 (see Figure RN-2). Over this same time period the Canadian population increased by 9.1%.

Figure RN-2. Number of Registered Nurses Employed in Nursing per 100,000 Population, Canada, 1993–2002



Source: RNDB/CIHI

- In 2002, the only two provinces that had RNs per 100,000 population below the Canadian ratio were Ontario (650.2) and British Columbia (672.1), the remainder of the provinces were the same or above. The province and territory with the highest per 100,000 population were Newfoundland and Labrador (1,023.9) and the Northwest Territories (1,175.7) respectively (see Table RN-2).

Factors That May Influence Demand for Personnel

- RNs are at the centre of the Canadian healthcare system. They are the largest regulated health care provider group. Any new health services, programs, or models will have a direct influence on demand for RNs. For example, the development of a Primary health care model; Health care shifts; globalization of health services and other changes to the Canadian Healthcare system will require decision-makers to assess and adapt the RN workforce (size, deployment, scope of practice, responsibilities, etc.), to address health promotion, illness prevention, research and innovation, and to better respond to cultural challenges (i.e. ethno-cultural needs of the population, etc.).

What Else Do We Know?

The following information is from the CIHI publication, *Workforce Trends of Registered Nurses in Canada, 2002*. For further details please visit www.cihi.ca.

- In 2002, there were more RNs in the Canadian workforce aged 55–59 years than aged 25–29 years.
- The average age of the RN workforce increased by 1.6 years between 1998 and 2002, from 42.6 years to 44.2 years.
- Almost half of all male RNs employed in nursing in Canada are in Quebec, where the 5,272 males account for 8.9% of the province's workforce. In contrast, only 2.0% of Prince Edward Island's RNs are male, the lowest percentage among the provinces/territories. Overall, 5.1% of the RN workforce is male.
- The number of RNs obtaining a baccalaureate degree in nursing is increasing, as more RNs are entering nursing practice with a baccalaureate degree, and as more RNs return to school mid-career to obtain a degree in nursing.
- Of the 230,957 RNs employed in nursing in Canada in 2002, 13.2% earned a baccalaureate degree before entering practice. This ratio continues to increase each year; in 1998, 10.6% of the RN workforce had earned a baccalaureate degree before entering practice. Of those graduating since 1998, more than 40% obtained a baccalaureate before entering practice.
- In 2002, more than 40% of the Yukon RN workforce had obtained a baccalaureate degree in nursing, the highest ratio in the country. In contrast, only 21.3% of the Ontario RN workforce and 23.2% of the Saskatchewan RN workforce had obtained a baccalaureate degree as their highest education in nursing.
- Almost half of the current Canadian RN workforce graduated more than 20 years ago, with only one-fifth (22.0%) of the workforce graduating within the past 10 years.
- Limited data on Nurse Practitioners is available from the Registered Nurses Database (RNDB) at CIHI (www.cihi.ca). For information on Nurse Practitioner regulation/legislation, please refer to the Canadian Nurses Association website (www.cna-aiic.ca).
- Special study on retirement projection—*Bringing the Future into Focus: Projecting Retirement Registered Nurses in Canada*, provides a detailed national view of losses of experienced nurses due to retirement in the aging nursing workforce. The report points to potential solutions and directs recommendations to the parts of the country and the system where strategies would make the most difference. This report was released in the summer of 2003 by CIHI and is available at www.cihi.ca.

Visit www.cihi.ca for more information.

Entering the Profession

Number of Years	Education and/or Training Required to Enter Practice in Canada
3	Diploma in registered nursing[1]
4	Baccalaureate in registered nursing
National Exam	Canadian Registered Nurse Examination (CRNE)[2]

Notes

[1] "Students in British Columbia, Alberta, Ontario, Quebec, and the territories can still choose either a diploma or a degree program to prepare for a career in nursing. … Ontario's College of Nurses will require a degree in nursing for entry to practice beginning in 2005. In all other provinces students must choose to obtain a baccalaureate degree in nursing to prepare for a career. Diploma graduates who are already practising as the requirement changes will be able to continue without mandatory upgrading. Diploma graduates who wish to study for a degree can apply to university, or institute schools of nursing that offer special and shortened programs for registered nurses. *Canadian Nurses Association*, http://www.cna-aiic.ca, September 2003.

[2] Individuals with a diploma or degree in registered nursing must pass the Canadian Registered Nurse Examination (CRNE) or L'examen professionnel (de l'admission à la profession) de l'Ordre des infirmières et infirmiers du Québec to earn the title "Registered Nurse" and to work as a registered nurse in a Canadian province/territory.

Changes to Education and/or Training Requirements

- In 2005, the regulatory authority for registered nursing in Ontario, the College of Nurses of Ontario, will require newly-trained RNs to have a degree in registered nursing as entry-to-practice education. Other provinces/territories are also reviewing legislation for entry to practice requirements (for example, British Columbia is moving towards all RNs having to complete a four-year baccalaureate degree). These changes will not affect registered nurses already practising.

Possible Areas of Certified Specialization

- The Canadian Nurses Association offers a voluntary certification program, in which registered nurses can write a national exam in one of fourteen areas of specialization. This credentialing program is designed to recognize a registered nurse's knowledge and competence in a recognized nursing specialty.
- The evolution and progression of the nursing profession have contributed to the development of the nurse practitioner (NP) role in Canada. A NP is an advanced practice nurse whose practice is focused on providing services to manage the health needs of individuals, families, groups, and communities. An increasing number of Canadian provinces/territories are developing NP legislation and regulation. More information is available from provincial/territorial regulatory authorities for registered nursing.

Accessing Personnel/Factors That May Influence Demand for Personnel

- For further information, please contact the Nursing area at the Canadian Institute for Health Information. E-mail: nursing@cihi.ca or visit www.cihi.ca.

What's Happening?

Listed are references to key research documents relating to registered nurses that are recommended reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *Bringing the Future into Focus: Projecting RN Retirement in Canada*. Canadian Institute for Health Information/University of Toronto, 2003, http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=AR_1023_E
2. *Workforce Trends of Registered Nurses in Canada, 2002*. Canadian Institute for Health Information, 2003, http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=PG_90_E&cw_topic=90&cw_rel=AR_20_E
3. *Our Health, Our Future: Creating Quality Workplaces for Canadian Nurses—Final Report of the Canadian Nursing Advisory Committee*. Advisory Committee on Health Human Resources, 2002. http://www.hc-sc.gc.ca/english/pdf/Office-of-NursingPolicy.pdf
4. *Building on Values: The Future of Health Care in Canada—Chapter 4: Investing in Health Care Providers*. Commission on the Future of Health Care in Canada, Roy J. Romanow, Commissioner, 2002. http://www.hc-sc.gc.ca/english/care/romanow/hcc0023.html
5. *Survey of Casual and Part-Time Registered Nurses in Ontario*. Registered Nurses Association of Ontario, May 2003. http://www.rnao.org/html/PDF/RNAO_part_time_casual_report.pdf
6. *A Report on The Nursing Strategy for Canada*. Advisory Committee Health Delivery and Human Resources, 2003. http://www.hc-sc.gc.ca/english/ media/releases/2003/2003_67bk1.htm
7. *Supply and Distribution of Registered Nurses in Rural and Small Town Canada*. Canadian Institute for Health Information/Nursing Practice in Rural and Remote Canada Study Group, 2002. http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=AR_28_E&cw_topic=28
8. *Planning for the Future: Nursing Human Resource Projections*. Canadian Nurses Association, 2002. http://www.cna-aiic.ca
9. *Workforce Planning and Workforce Management*. (2001) O'Brien-Pallas, L., Birch, S., & Tomblin Murphy, G. International Nursing Perspectives 1(2-3), 55-65.
10. *Nurses' Reports of Hospital Quality of Care and Working Conditions in Five Countries*. Linda H. Aiken, Sean P. Clarke, Douglas M. Sloane et al., Health Affairs, May–June 2001.
11. *Earning Their Return: When & Why Ontario RNs Left Canada, and What Will Bring Them Back*. Registered Nurses Association of Ontario, February 2001. http://www.rnao.org/html/pdf/survey.pdf
12. *Nursing Workforce Study, Vols I-V*. Health Human Resources Unit, Centre for Health Services and Policy Research, University of British Columbia, April 2000. http://www.chspr.ubc.ca/cgi-bin/pub?program=hhru&by=date

13. *The Nursing Strategy for Canada*. Advisory Committee on Health Human Resources, October 2000. http://www.hc-sc.gc.ca/english/for_you/nursing/

14. *Canada's Health Care Providers*. Canadian Institute for Health Information, 2001. http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=AR_35_E

15. *Future Development of Information to Support the Management of Nursing Resources: Recommendations*. Canadian Institute for Health Information, 2001. http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=GR_149_E

16. *A Statistical Picture of the Past, Present and Future of Registered Nurses in Canada*. Canadian Nurses Association, September 1997. http://www.cna-aiic.ca

17. *Commitment and Care: The benefits of a healthy workplace for nurses, their patients and the system*. 2001. http://www.chsrf.ca

Research in Progress

1. *Building the Future: an integrated strategy for nursing human resources in Canada*. http://www.buildingthefuture.ca Contact: info@buildingthefuture.ca
2. *Health of Nurses Survey*. http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=hhrdata_nursemonitor_e. Contact: nursing@cihi.ca
3. *The Nature of Nursing Practice in Rural and Remote Canada*. http://www.ruralnursing.unbc.ca/index.html. Contact: rrn@unbc.ca
4. *Unique Identifiers Development*. http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=infostand_unique_e. Contact: identifiers@cihi.ca

Data Tables

Table RN-1. Number of Registered Nurses by Province/Territory of Registration and Employment Status, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.										
Employed in nursing	5,145	5,178	5,203	5,261	5,210	5,340	5,264	5,394	5,439	5,442
Employed in other than nursing	42	58	60	45	25	13	11	8	10	8
Not employed	323	318	382	443	178	103	74	55	42	39
Not stated	0	0	2	13	0	0	0	7	0	1
Total	**5,510**	**5,554**	**5,647**	**5,762**	**5,413**	**5,456**	**5,349**	**5,464**	**5,491**	**5,490**
P.E.I.										
Employed in nursing	1,247	1,162	1,195	1,340	1,281	1,277	1,232	1,255	1,270	1,293
Employed in other than nursing	8	*	7	8	14	16	13	**	13	0
Not employed	21	**	28	44	46	42	10	**	18	0
Not stated	0	1	3	6	17	17	6	9	13	34
Total	**1,276**	**1,190**	**1,233**	**1,398**	**1,358**	**1,352**	**1,261**	**1,294**	**1,314**	**1,327**
N.S.										
Employed in nursing	9,129	9,157	8,863	8,738	8,587	8,525	8,615	8,699	8,554	8,419
Employed in other than nursing	46	33	64	99	54	28	22	18	13	22
Not employed	359	319	372	390	315	312	249	219	224	182
Not stated	10	33	25	29	0	0	0	0	0	0
Total	**9,544**	**9,542**	**9,324**	**9,256**	**8,956**	**8,865**	**8,886**	**8,936**	**8,791**	**8,623**
N.B.										
Employed in nursing	7,521	7,610	7,473	7,361	7,342	7,404	7,580	7,256	7,385	7,364
Employed in other than nursing	26	24	17	65	97	75	51	8	5	10
Not employed	156	145	140	344	370	376	186	132	128	228
Not stated	608	645	647	59	62	18	9	370	237	73
Total	**8,311**	**8,424**	**8,277**	**7,829**	**7,871**	**7,873**	**7,826**	**7,766**	**7,755**	**7,675**
Que.										
Employed in nursing	59,860	61,218	62,058	57,291	59,160	56,825	57,980	58,750	58,482	59,193
Employed in other than nursing	382	430	513	n/s	n/s	n/s	n/s	505	400	249
Not employed	904	790	705	n/s	15	n/s	n/s	618	663	615
Not stated	2,016	1,655	1,579	7,635	7,244	6,819	7,122	3,691	3,558	3,145
Total	**63,162**	**64,093**	**64,855**	**64,926**	**66,419**	**63,644**	**65,102**	**63,564**	**63,103**	**63,202**
Ont.										
Employed in nursing	84,343	81,301	79,410	80,198	78,067	78,825	78,197	81,679	80,590	78,737
Employed in other than nursing	8,676	7,193	5,111	5,517	5,201	5,325	4,993	3,833	5,379	4,953
Not employed	5,940	7,813	7,555	8,250	5,362	7,921	7,382	3,019	5,732	6,069
Not stated	2,587	4,630	6,219	5,362	8,655	3,359	5,339	7,253	2,786	5,523
Total	**101,546**	**100,937**	**98,295**	**99,327**	**97,285**	**95,430**	**95,911**	**95,784**	**94,487**	**95,282**
Man.										
Employed in nursing	10,258	10,083	10,210	10,452	10,473	10,162	10,193	10,051	10,263	9,942
Employed in other than nursing	162	165	110	78	104	67	49	n/s	n/s	n/s
Not employed	70	53	38	77	87	71	39	n/s	n/s	n/s
Not stated	425	33	22	69	70	98	45	236	28	319
Total	**10,915**	**10,334**	**10,380**	**10,676**	**10,734**	**10,398**	**10,326**	**10,287**	**10,291**	**10,261**

(table continued on next page)

Table RN-1. Number of Registered Nurses by Province/Territory of Registration and Employment Status, Canada, 1993–2002 (cont'd)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Sask.										
Employed in nursing	8,390	8,491	8,447	8,508	8,456	8,455	8,553	8,543	8,198	8,257
Employed in other than nursing	72	94	109	107	97	65	52	41	29	26
Not employed	209	242	195	163	153	149	171	101	84	84
Not stated	155	220	93	177	104	4	2	4	238	38
Total	**8,826**	**9,047**	**8,844**	**8,955**	**8,810**	**8,673**	**8,778**	**8,689**	**8,549**	**8,405**
Alta.										
Employed in nursing	21,835	21,799	21,132	20,549	21,238	21,976	22,044	22,172	22,924	23,377
Employed in other than nursing	259	309	339	342	290	173	104	25	58	37
Not employed	1,712	1,168	708	820	755	659	494	201	325	379
Not stated	342	200	499	603	434	369	422	1,008	514	857
Total	**24,148**	**23,476**	**22,678**	**22,314**	**22,717**	**23,177**	**23,064**	**23,406**	**23,821**	**24,650**
B.C.										
Employed in nursing	27,384	27,575	27,329	27,878	27,964	28,001	27,911	27,730	27,375	27,901
Employed in other than nursing	499	92	23	10	19	24	78	54	10	82
Not employed	1,492	298	37	25	42	36	176	104	11	194
Not stated	1,166	2,781	1,078	1,160	1,106	834	874	611	841	585
Total	**30,541**	**30,746**	**28,467**	**29,073**	**29,131**	**28,895**	**29,039**	**28,499**	**28,237**	**28,762**
Y.T.										
Employed in nursing	..	231	237	271	302	286	283	275	273	272
Employed in other than nursing	..	*	*	*	5	6	*	*	*	*
Not employed	..	*	*	**	12	5	*	*	*	*
Not stated	..	0	0	31	5	0	0	0	*	0
Total	**..**	**235**	**242**	**311**	**324**	**297**	**291**	**282**	**281**	**276**
N.W.T.										
Employed in nursing	626	697	692	723	633	738	682	762	471	487
Employed in other than nursing	8	11	**	**	14	12	*	0	0	*
Not employed	25	17	**	**	18	20	**	14	*	**
Not stated	0	5	2	14	18	20	40	4	**	21
Total	**659**	**730**	**723**	**771**	**683**	**790**	**737**	**780**	**485**	**519**
Nun.										
Employed in nursing	..	..	..	..	..	..	..	..	288	273
Employed in other than nursing	..	..	..	..	..	..	..	..	*	*
Not employed	..	..	..	..	..	..	..	..	*	*
Not stated	..	..	..	..	..	..	..	..	0	4
Total	**..**	**..**	**..**	**..**	**..**	**..**	**..**	**..**	**292**	**280**
Canada										
Employed in nursing	**235,738**	**234,502**	**232,249**	**228,570**	**228,713**	**227,814**	**228,534**	**232,566**	**231,512**	**230,957**
Employed in other than nursing	**10,180**	**8,414**	**6,367**	**6,281**	**5,920**	**5,804**	**5,381**	**4,506**	**5,921**	**5,392**
Not employed	**11,211**	**11,189**	**10,180**	**10,589**	**7,353**	**9,694**	**8,796**	**4,486**	**7,237**	**7,803**
Not stated	**7,309**	**10,203**	**10,169**	**15,158**	**17,715**	**11,538**	**13,859**	**13,193**	**8,227**	**10,600**
Total	**264,438**	**264,308**	**258,965**	**260,598**	**259,701**	**254,850**	**256,570**	**254,751**	**252,897**	**254,752**

Source: RNDB/CIHI

Notes

* Value suppressed in accordance with CIHI privacy policy; cell value is from 1 to 4
** Value suppressed to ensure confidentiality; cell value is 5 or greater
n/s = Data not submitted to CIHI
.. Nil or zero
CIHI reports the "Employed in nursing" figure in its RN publications, media releases, ad-hoc requests and on the CIHI website.
The "Employed in nursing" figure includes employment in Direct Care, Administration, Education and Research.
Some data between 1994 and 2000 have been revised from figures previously published by Statistics Canada and/or CIHI.
There was no licensing body in the Yukon until 1994. Prior to 1994, RNs working in the Yukon were required to register in other Canadian provinces/territories.
Prior to 2001, Northwest Territories and Nunavut data are combined.
Provincial data excludes secondary registrations that do not reflect the primary jurisdiction of employment. These secondary registrations are retained in the territorial data for RNs employed in nursing in the territories.
CIHI statistics will differ from provincial/territorial statistics for four primary reasons: (1) CIHI data are collected at the six-month mark of the registration year, in contrast to provincial/territorial figures that include the full twelve-month period; (2) CIHI removes "secondary" registrations that do not reflect primary employment; (3) CIHI uses a narrower definition of "registered nurse workforce" which includes only those employed in nursing at the time of registration; and, (4) provincial/territorial regulatory authorities may review and improve the completeness of data at year-end, after CIHI has received its data.
Data subject to change as data quality reviews continue.

Table RN-2. Number of Registered Nurses Employed in Nursing per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	891.0	906.8	922.0	943.8	947.2	983.4	973.9	1,005.7	1,019.9	1,023.9
P.E.I.	937.8	864.7	881.7	981.4	936.0	930.2	892.0	906.6	911.5	921.4
N.S.	986.4	987.7	953.4	936.2	917.7	909.4	913.7	922.5	906.4	890.7
N.B.	1,002.5	1,012.5	993.3	976.9	973.5	982.7	1,002.4	960.6	977.6	973.3
Que.	832.5	847.3	854.9	785.9	809.0	774.5	787.2	794.4	786.5	793.0
Ont.	784.5	746.6	720.0	718.4	690.1	689.1	674.4	693.5	673.6	650.2
Man.	915.8	895.6	902.9	920.7	921.8	892.1	891.1	876.3	893.8	864.3
Sask.	832.6	839.1	831.2	833.6	826.3	823.9	835.4	838.0	808.2	817.5
Alta.	812.5	801.1	765.8	732.5	740.9	749.3	739.8	731.2	742.8	747.4
B.C.	754.6	737.8	712.7	710.5	701.7	698.1	690.0	680.1	664.3	672.1
Y.T.	.. [1]	762.5	752.7	843.6	946.2	920.8	921.9	909.3	906.9	913.1
N.W.T.	1,550.9	1,691.3	1,663.8	1,735.8	1,527.9	1,803.3	1,664.4	1,857.7	1,143.6	1,175.7
Canada	**818.2**	**804.0**	**787.7**	**767.2**	**760.2**	**751.2**	**746.8**	**752.8**	**741.7**	**734.2**

Sources: RNDB/CIHI, Statistics Canada

Note

1. There was no licensing body in the Yukon until 1994. Prior to 1994, RNs working in the Yukon were required to register in other Canadian provinces/territories.

Table RN-3. Number of Registered Nurses Employed in Nursing by Province/Territory of Registration and Derived Employment Status, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.										
Full-time	3,421	3,363	3,306	3,290	3,071	3,149	3,227	3,918	4,046	4,050
Part-time	919	918	929	934	881	852	844	871	851	875
Casual	805	897	968	1,037	1,258	1,339	1,193	605	542	517
Unknown	0	0	0	0	0	0	0	0	0	0
Total	**5,145**	**5,178**	**5,203**	**5,261**	**5,210**	**5,340**	**5,264**	**5,394**	**5,439**	**5,442**
P.E.I.										
Full-time	553	510	506	578	570	543	539	505	616	650
Part-time	444	447	454	479	477	497	487	562	539	528
Casual	240	205	235	283	234	237	206	188	115	115
Unknown	10	0	0	0	0	0	0	0	0	0
Total	**1,247**	**1,162**	**1,195**	**1,340**	**1,281**	**1,277**	**1,232**	**1,255**	**1,270**	**1,293**
N.S.										
Full-time	5,417	5,355	5,044	4,915	4,704	4,616	4,701	4,910	4,884	5,008
Part-time	2,005	1,996	1,932	1,916	2,020	2,060	2,081	2,156	2,216	2,255
Casual	1,707	1,806	1,887	1,907	1,863	1,849	1,833	1,633	1,454	1,156
Unknown	0	0	0	0	0	0	0	0	0	0
Total	**9,129**	**9,157**	**8,863**	**8,738**	**8,587**	**8,525**	**8,615**	**8,699**	**8,554**	**8,419**
N.B.										
Full-time	4,443	4,378	4,220	4,057	3,903	3,914	3,975	3,889	4,281	4,354
Part-time	1,816	1,794	1,862	1,827	1,881	1,881	1,964	2,305	2,162	2,050
Casual	1,262	1,438	1,391	1,477	1,558	1,609	1,641	1,062	942	782
Unknown	0	0	0	0	0	0	0	0	0	178
Total	**7,521**	**7,610**	**7,473**	**7,361**	**7,342**	**7,404**	**7,580**	**7,256**	**7,385**	**7,364**
Que.										
Full-time	32,436	32,679	26,024	22,485	28,986	27,322	28,115	29,895	30,863	31,963
Part-time	22,458	23,166	19,335	16,128	20,319	19,095	19,308	19,670	19,975	20,309
Casual	4,966	5,373	6,639	8,818	9,855	10,408	10,557	9,185	7,644	6,921
Unknown	0	0	10,060	9,860	0	0	0	0	0	0
Total	**59,860**	**61,218**	**62,058**	**57,291**	**59,160**	**56,825**	**57,980**	**58,750**	**58,482**	**59,193**
Ont.										
Full-time	46,547	44,096	43,369	42,493	40,005	39,478	39,383	43,899	44,496	44,803
Part-time	26,304	25,713	25,673	26,721	26,738	27,999	28,101	28,949	28,115	26,185
Casual	11,492	11,492	10,368	10,984	11,324	11,348	10,713	8,831	7,979	7,749
Unknown	0	0	0	0	0	0	0	0	0	0
Total	**84,343**	**81,301**	**79,410**	**80,198**	**78,067**	**78,825**	**78,197**	**81,679**	**80,590**	**78,737**
Man.										
Full-time	4,991	4,685	4,633	4,558	4,439	4,359	4,440	4,524	4,721	4,563
Part-time	4,189	4,211	4,344	4,512	4,697	4,745	4,949	4,886	4,883	4,734
Casual	1,078	1,187	1,233	1,382	1,337	1,058	804	641	659	645
Unknown	0	0	0	0	0	0	0	0	0	0
Total	**10,258**	**10,083**	**10,210**	**10,452**	**10,473**	**10,162**	**10,193**	**10,051**	**10,263**	**9,942**

(table continued on next page)

Table RN-3. Number of Registered Nurses Employed in Nursing by Province/Territory of Registration and Derived Employment Status, Canada, 1993–2002 (cont'd)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Sask.										
Full-time	3,876	2,630	3,965	4,014	3,902	3,913	4,119	4,340	4,229	4,177
Part-time	2,780	2,246	2,264	3,002	2,987	2,997	3,129	3,173	3,052	2,832
Casual	1,734	1,787	1,761	1,492	1,567	1,545	1,305	1,030	917	860
Unknown	0	1,828	457	0	0	0	0	0	0	388
Total	**8,390**	**8,491**	**8,447**	**8,508**	**8,456**	**8,455**	**8,553**	**8,543**	**8,198**	**8,257**
Alta.										
Full-time	13,183	12,389	10,752	10,070	10,345	10,887	10,388	11,392	10,699	10,333
Part-time	4,703	5,018	5,839	5,452	5,498	5,960	4,737	6,469	7,962	9,267
Casual	3,949	4,392	4,541	5,027	5,395	5,129	6,919	4,311	4,263	3,777
Unknown	0	0	0	0	0	0	0	0	0	0
Total	**21,835**	**21,799**	**21,132**	**20,549**	**21,238**	**21,976**	**22,044**	**22,172**	**22,924**	**23,377**
B.C.										
Full-time	14,411	14,182	13,587	13,628	13,508	13,246	13,227	12,880	13,881	14,453
Part-time	5,786	5,785	5,773	6,944	7,196	7,038	8,398	7,985	8,542	8,943
Casual	6,633	7,110	7,451	7,000	7,160	7,613	6,148	6,865	4,952	4,505
Unknown	554	498	518	306	100	104	138	0	0	0
Total	**27,384**	**27,575**	**27,329**	**27,878**	**27,964**	**28,001**	**27,911**	**27,730**	**27,375**	**27,901**
Y.T.										
Full-time	..	132	129	159	150	148	139	132	128	123
Part-time	..	61	64	73	92	88	96	88	95	95
Casual	..	**	44	39	60	50	48	55	50	54
Unknown	..	*	0	0	0	0	0	0	0	0
Total	**..**	**231**	**237**	**271**	**302**	**286**	**283**	**275**	**273**	**272**
N.W.T.										
Full-time	478	517	487	194	239	281	259	n/a	n/a	299
Part-time	49	**	66	45	52	59	73	n/a	n/a	65
Casual	99	**	139	162	143	174	141	n/a	n/a	100
Unknown				322	199	224	209	762	471	23
Total	**626**	**697**	**692**	**723**	**633**	**738**	**682**	**762**	**471**	**487**
Nun.										
Full-time	..	..	..	..	..	..	..	..	n/a	170
Part-time	..	..	..	..	..	..	..	..	n/a	25
Casual	..	..	..	..	..	..	..	..	n/a	68
Unknown	..	..	..	..	..	..	..	..	288	10
Total	**..**	**..**	**..**	**..**	**..**	**..**	**..**	**..**	**288**	**273**
Canada										
Full-time	**129,756**	**124,916**	**116,022**	**110,441**	**113,822**	**111,856**	**112,512**	**120,284**	**122,844**	**124,946**
Part-time	**71,453**	**71,414**	**68,535**	**68,033**	**72,838**	**73,271**	**74,167**	**77,114**	**78,392**	**78,163**
Casual	**33,965**	**35,844**	**36,657**	**39,608**	**41,754**	**42,359**	**41,508**	**34,406**	**29,517**	**27,249**
Unknown	**564**	**2,328**	**11,035**	**10,488**	**299**	**328**	**347**	**762**	**759**	**599**
Total	**235,738**	**234,502**	**232,249**	**228,570**	**228,713**	**227,814**	**228,534**	**232,566**	**231,512**	**230,957**

Source: RNDB/CIHI

Notes

* Value suppressed in accordance with CIHI privacy policy; cell value is from 1 to 4

** Value suppressed to ensure confidentiality; cell value is 5 or greater

n/a = Data not available

Data represent all active-practising RNs employed in nursing at the time of annual registration. This includes employment in Direct Care, Administration, Education and Research.

Some data between 1994 and 2000 have been revised from figures previously published by Statistics Canada and/or CIHI.

There was no licensing body in the Yukon until 1994. Prior to 1994, RNs working in the Yukon were required to register in other Canadian provinces/territories.

Some full-time/part-time data are not available for RNs registered in Quebec in 1995 and 1996.

Prior to 2001, Northwest Territories and Nunavut data are combined.

Provincial data excludes secondary registrations that do not reflect the primary jurisdiction of employment. These secondary registrations are retained in the territorial data for RNs employed in nursing in the territories.

CIHI statistics will differ from provincial/territorial statistics for four primary reasons: (1) CIHI data are collected at the six-month mark of the registration year, in contrast to provincial/territorial figures that include the full twelve-month period; (2) CIHI removes "secondary" registrations that do not reflect primary employment; (3) CIHI uses a narrower definition of "registered nurse workforce" which includes only those employed in nursing at the time of registration; and, (4) provincial/territorial regulatory authorities may review and improve the completeness of data at year-end, after CIHI has received its data.

Data subject to change as data quality reviews continue.

Endnotes

Sources

Figure RN-1. Calculated from data in Table RN-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure RN-2. Calculated from data in Table RN-2.

Table RN-1. Registered Nurses Database, Canadian Institute for Health Information

Table RN-2. Data calculated based on Table RN-1 and population estimates from Statistics Canada shown in Appendix C.

Table RN-3. Registered Nurses Database, Canadian Institute for Health Information

Registered Psychiatric Nurses

Definition

Registered Psychiatric Nurses are a distinct profession that provides services to individuals whose primary care needs relate to mental and developmental health.

Responsibilities/Activities

Registered Psychiatric Nurses duties include planning, implementing and evaluating therapies and programs on the basis of psychiatric nursing assessments.

Practice Setting

Some of the areas of practice and employment settings where Registered Psychiatric Nurses work are: acute psychiatry, long-term geriatric care and home care, residential and community programs for the developmentally handicapped, forensic psychiatry, institutional and community based corrections, community mental health programs, K-12 special education programs, employee assistance programs, child guidance and family therapy clinics, chemical dependency programs, hospitals and special care homes, women's shelters and clinics, residential and community adolescent programs, consultation and private practice, psychiatric nursing education, sheltered workshops, rehabilitation programs, vocational programs, administration, personnel and staff developments, self-help groups.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from the provincial regulatory authorities for the years 1993 to 2001, whereas, 2002 data is provided by the Registered Psychiatric Nurses Database (RPNDB) at CIHI. Beginning in 2002, registered psychiatric nursing regulatory authorities submit a core set of agreed upon data elements to CIHI on an annual basis; reported indicators from the RPNDB system are based on standardized data that is comparable across Canada. The introduction of RPNDB data reflects a break in the registered psychiatric nurses data series reported in HPDB, and readers are cautioned that 2002 data is not directly comparable to previous years (1993 to 2001).

Visit www.cihi.ca for more information.

Secondary Data Source: The 1991 Standard Occupational Classification classifies Registered Psychiatric under the unit groups D111 Head Nurses and Supervisors and D112 Registered Nurses; as a result, Labour Force Survey and Census estimates for Registered Psychiatric Nurses are not available.

Regulatory Environment

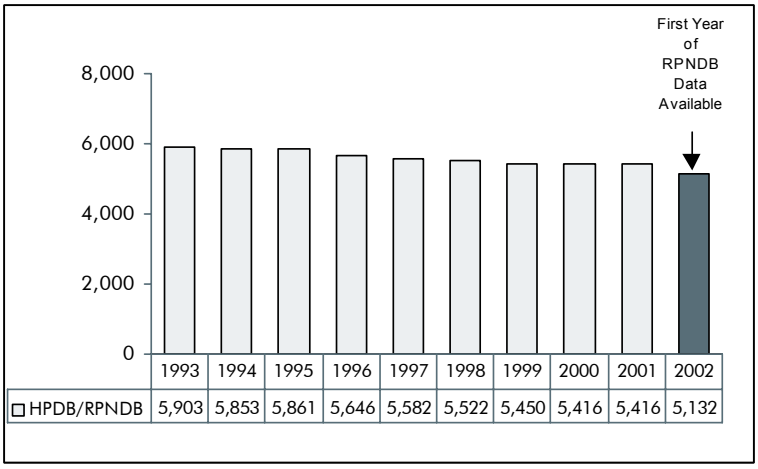
- Registered Psychiatric Nurses (RPNs) are regulated as a distinct profession in only four provinces in Canada: British Columbia, Alberta, Saskatchewan, and Manitoba.

	Man.	Sask.	Alta.	B.C.
First Year of Regulation	1960	1948	1955	1951

Supply Trends

- In 2002, 42.0% of the RPNs were located in British Columbia. The remaining RPNs were located in Alberta (21.1%), Manitoba (18.8%), and Saskatchewan (18.1%).
- In Figure RPN-1, the 2002 data is not directly comparable to the data presented for 1993 to 2001 due to different collection methodologies.

Figure RPN-1. Number of Registered Psychiatric Nurses, Western Canada, 1993–2002



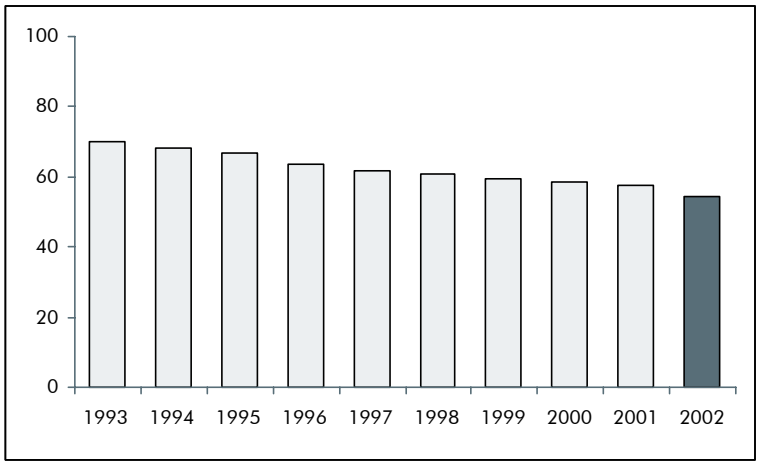
Sources: HPDB/CIHI, RPNDB/CIHI (2002)

Note: Figures from 1993 to 2001 represents total active registered, regardless of activity/employment status. Data in 2002 represents a data series break and reflects registered, active practicing, employed in registered psychiatric nursing. CIHI data will differ from provincial data due to the CIHI collection, processing and reporting methodology. Please review the Methodological Notes for more comprehensive information regarding the collection and comparability of RPNDB data.

Growth in Supply Relative to Population

- In 2002, there were 54.4 registered psychiatric nurses per 100,000 population in Western Canada (see Figure RPN-2).
- In 2002, the highest number of RPNs per 100,000 population was in Saskatchewan (92.1). The province with the lowest per 100,000 population was Alberta (34.6) (see Table RPN-2).

Figure RPN-2. Number of Registered Psychiatric Nurses per 100,000 Population, Western Canada, 1993–2002



Sources: HPDB/CIHI; RPNDB/CIHI (2002)

Note: Figures from 1993 to 2001 represents total active registered, regardless of activity/employment status. Data in 2002 represents a data series break and reflects registered, active practicing, employed in registered psychiatric nursing. CIHI data will differ from provincial data due to the CIHI collection, processing and reporting methodology. Please review the Methodological Notes for more comprehensive information regarding the collection and comparability of RPNDB data.

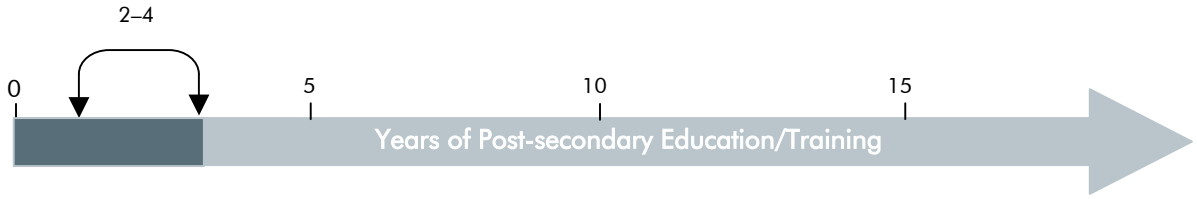
Accessing Personnel/Factors That May Influence Demand for Personnel

- For further information, please contact the Nursing area at the Canadian Institute for Health Information. E-mail: nursing@cihi.ca or visit www.cihi.ca.

What Else Do We Know?

- The following information is from the CIHI publication, *Workforce Trends of Registered Psychiatric Nurses in Canada, 2002*. For further details please visit www.cihi.ca.
  - The average age of RPNs employed in psychiatric nursing in Canada in 2002 was 45.7 years.
  - In 2002, 76.0% of RPNs were female and 24.0% were male. Alberta has the highest percentage of male RPNs at 26.5%.
  - 20.2% of Canada's RPN workforce in 2002 was 55 years of age or older.
  - The majority of RPNs employed in psychiatric nursing in Canada in 2002 initially graduated from a diploma program prior to entering the workforce. Manitoba has the highest number of RPNs with initial baccalaureate education, with 6.4%.
  - Of the 5,132 RPNs employed in psychiatric nursing, 7.5% of them originally obtained their education overseas. Of these foreign graduates, 84.2% received their psychiatric nursing education from the United Kingdom.

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
4 academic years OR 3 academic years plus a 6 credit course	Manitoba: Undergraduate degree (Bachelor of Science in Psychiatric Nursing) Baccalaureate exit option. Diploma exit option
2 academic years (22 months)	Alberta: Two-year diploma program
3 academic years (24 months)	British Columbia: Three-year diploma program

Changes to Education and/or Training Requirements

- Within the next 12 months there is an anticipated change in the re-establishment of a Psychiatric Nursing Education Program in Saskatchewan.
- In British Columbia, two proposals are being developed for an undergraduate degree in Psychiatric Nursing as entry to the profession.
- In Alberta, seats for Psychiatric Nursing Education are doubling starting this September and there is a goal to work towards an undergraduate degree.

Possible Areas of Certified Specialization

- Although there are no certification programs for specialization at this time, there is recognition of specialized areas of practice for Registered Psychiatric Nurses. These include child and adolescent psychiatry; psycho-geriatrics; forensic psychiatric nursing; emergency/crisis psychiatric nursing.
- Please refer to *Registered Psychiatric Nurses: A Competency Profile for the Profession*. The document is a "read only" file on the websites of the four regulatory bodies (www.crpnbc.bc.ca, www.rpnaa.ab.ca, www.rpnas.com, www.crpnm.mb.ca).

What's Happening?

Listed are references to key research documents relating to registered psychiatric nurses that are recommended reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *Nursing Data Base;* Manitoba Health; 2002; Workforce Policy & Planning, Manitoba Health, 100 - 300 Carlton St., Winnipeg, Manitoba, R3B 3M9 (This document provides data on Licensed Practical Nurses, Registered Nurses and Registered Psychiatric Nurses in Manitoba on a yearly basis).
2. *Workforce Trends of Registered Psychiatric Nurses in Canada, 2002*; Canadian Institute for Health Information, www.cihi.ca.

Research in Progress

1. *Building the Future: an integrated strategy for nursing human resources in Canada*. http://www.buildingthefuture.ca. Contact: info@buildingthefuture.ca
2. *Health of Nurses Survey*. http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=hhrdata_nursemonitor_e. Contact: nursing@cihi.ca

Data Tables

Table RPN-1. Number of Active Registered Psychiatric Nurses by Province, Western Canada, 1993–2002[1]

	1993	1994	1995	1996	1997	1998	1999	2000	2001	Series Break	2002 [2]
Man.	1,176	1,149	1,133	1,102	1,077	1,055	1,034	1,028	1,011		966
Sask.	1,142	1,172	1,182	1,155	1,137	1,112	1,089	1,051	1,038		930
Alta.	1,303	1,275	1,230	1,177	1,158	1,155	1,148	1,136	1,186		1,081
B.C.	2,282	2,257	2,316	2,212	2,210	2,200	2,179	2,201	2,181		2,155
Western Canada	**5,903**	**5,853**	**5,861**	**5,646**	**5,582**	**5,522**	**5,450**	**5,416**	**5,416**		**5,132**

Sources: HPDB/CIHI, RPNDB/CIHI

Notes

1. Figures from 1993 to 2001 represents total active registered, regardless of activity/employment status. Data in 2002 represents a data series break and reflects registered, active practicing, employed in registered psychiatric nursing. CIHI data will differ from provincial data due to the CIHI collection, processing and reporting methodology. Please review the Methodological Notes for more comprehensive information regarding the collection and comparability of RPNDB data.
2. The 2002 data is not directly comparable to the data presented for 1993 to 2001 due to different collection methodologies. Data in 2002 reflects active practicing, employed in registered psychiatric nursing. In 2002, British Columbia did not submit information regarding employment status, so all registered psychiatric nurses in British Columbia are considered to be employed in psychiatric nursing.

CIHI data will differ from provincial data due to the CIHI collection, processing and reporting methodology.
Please review the Methodological Notes for more comprehensive information regarding the collection and comparability of RPNDB data.

Table RPN-2. Number of Active Registered Psychiatric Nurses per 100,000 Population by Province, Western Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	Series Break	2002 [1]
Man.	105.0	102.1	100.2	97.1	94.8	92.6	90.4	89.6	88.1		84.0
Sask.	113.3	115.8	116.3	113.2	111.1	108.4	106.4	103.1	102.3		92.1
Alta.	48.5	46.9	44.6	42.0	40.4	39.4	38.5	37.5	38.4		34.6
B.C.	62.9	60.4	60.4	56.4	55.5	54.9	53.9	54.0	52.9		51.9
Western Canada	**69.9**	**68.1**	**67.1**	**63.5**	**61.9**	**60.6**	**59.3**	**58.4**	**57.8**		**54.4**

Sources: HPDB/CIHI, RPNDB/CIHI

Note

1. Figures from 1993 to 2001 represents total active registered, regardless of activity/employment status. Data in 2002 represents a data series break and reflects registered, active practicing, employed in registered psychiatric nursing. CIHI data will differ from provincial data due to the CIHI collection, processing and reporting methodology. Please review the Methodological Notes for more comprehensive information regarding the collection and comparability of RPNDB data. See Table RPN-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratios. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Endnotes

Sources

Figure RPN-1. Calculated from data in Table RPN-1.

Figure RPN-2. Calculated from data in Table RPN-2.

Table RPN-1. 1993–2001: Data provided by provincial regulatory authorities (Registered Psychiatric Nurses Association of Alberta, College of Registered Psychiatric Nurses of British Columbia, College of Registered Psychiatric Nurses of Manitoba, Registered Psychiatric Nurses Association of Saskatchewan).

2002: Data from RPNDB/CIHI

Table RPN-2. Data calculated based on Table RPN-1 and population estimates from Statistics Canada shown in Appendix C.

Respiratory Therapists

Definition

Respiratory therapists are healthcare professionals who assist physicians with the diagnosis and treatment of lung disorders.

Responsibilities/Activities

The duties of a respiratory therapist include: maintaining an open airway for trauma, intensive care, and surgery patients; assisting in cardiopulmonary resuscitation and support; providing life support for patients who can't breathe on their own; assisting in high risk births; stabilizing high risk patients being moved by air or ground ambulance; assisting anesthesiologists in the operating room; administering inhaled drugs and medical gases such as asthma medication and oxygen; conducting tests to measure lung function; teaching people to manage their asthma or to quit smoking; and providing in-home respiratory care to adults and children with chronic lung disease.

Practice Setting

Most respiratory therapists work in hospitals. They may be found in neonatal nurseries, operating rooms, intensive care units, general wards, and emergency departments. Respiratory therapists also work in the community, bringing their expertise to the following areas: home care; asthma, emphysema, cystic fibrosis and other clinics; teaching; research; rehabilitation; diagnostic clinics and sleep disorder labs; hyper-baricoxygen treatment; and medical equipment sales and services.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) and regulatory/licensing authorities (membership is a condition of employment) across Canada as the primary source of respiratory therapist data.

Secondary Data Source: This publication utilizes additional data from two survey sources (Labour Force Survey/Statistics Canada and Census/Statistics Canada). Both Census and LFS estimates are based on the Standard Occupational Classification D214 Respiratory Therapists and Clinical Perfusionists.

Regulatory Environment

- Registration with a provincial licensing authority is a mandatory condition of employment for respiratory therapists in four provinces: Quebec, Ontario, Manitoba, and Alberta.

	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	NR	NR	NR	NR	1985	1994	1981	NR	1988	NR	..	..	..

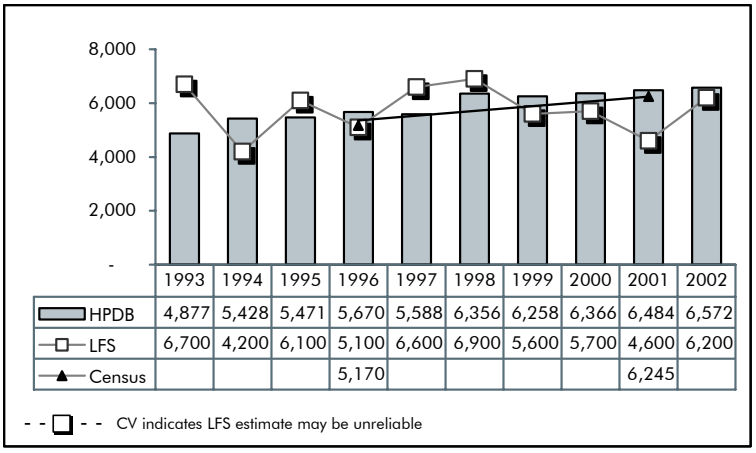
.. Information not available.

NR = Not Regulated as of 2002.

Supply Trends

- During the common comparable years of 1996 and 2001, HPDB counts of registered respiratory therapists increased 14.4%, the Census estimates of employed respiratory therapists in the workplace in Canada increased 20.8%, while the Labour Force Survey (LFS) estimates decreased 9.8% (see Figure RT-1).
- Census estimates of employed respiratory therapists in the workplace in Canada were 8.8% lower than HPDB counts in 1996 and 3.7% lower than HPDB in 2001. LFS estimates for the same years are 10.1% lower than HPDB counts in 1996 and 29.1% lower than HPDB counts in 2001. In general, LFS estimates did not follow the general trend exhibited in the HPDB data over the period, 1993 to 2002.

Figure RT-1. Number of Respiratory Therapists from Selected Data Sources, Canada, 1993–2002



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	4,877	5,428	5,471	5,670	5,588	6,356	6,258	6,366	6,484	6,572
LFS	6,700	4,200	6,100	5,100	6,600	6,900	5,600	5,700	4,600	6,200
Census				5,170					6,245	

- - ❑ - - CV indicates LFS estimate may be unreliable

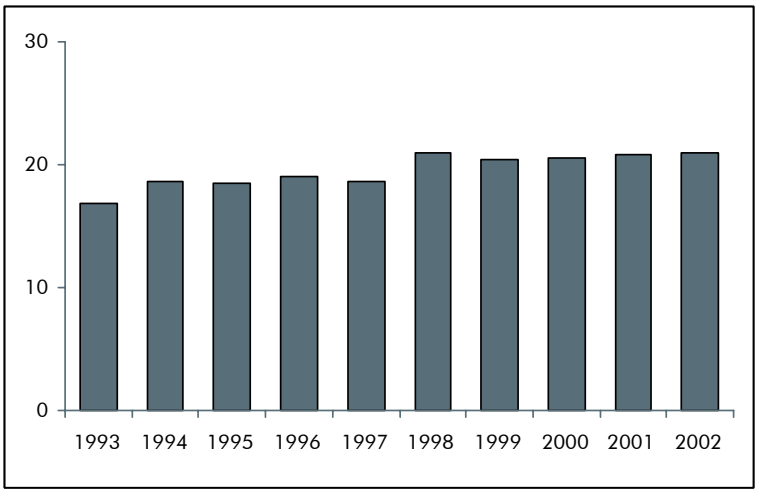
Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

- As shown in Figure RT-1, the number of respiratory therapists, as indicated in the HPDB, has increased steadily from 1993 to 2002. This represents a 34.8% increase in the number of respiratory therapists over this ten-year period. The fact that Ontario became regulated in 1994 and that only four provinces are regulated may influence observed trends in the data between 1993 and 2002. As such, caution must be exercised in interpreting counts provided by associations with voluntary membership, as the number of respiratory therapists may be undercounted.
- Table RT-1 shows the distribution of respiratory therapists by province from 1993 to 2002. Provincially, the percentage increases in the four regulated provinces over this ten-year period are as follows; Ontario (53.6%), Alberta (49.2%), Quebec (23.0%), and Manitoba (12.4%).

Growth in Supply Relative to Population

- In 2002, there were 20.9 respiratory therapists per 100,000 population in Canada (see Figure RT-2).
- In 2002, the highest numbers of respiratory therapists per 100,000 population were in Quebec (35.5) and Alberta (28.6) (see Table RT-2).

Figure RT-2. Number of Registered Respiratory Therapists* per 100,000 Population, Canada, 1993–2002



Source: HPDB/CIHI

* This data includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

Accessing Personnel**

- Physicians are the primary referring profession for Respiratory Therapists.
- Most services provided by respiratory therapists are based on requests from physicians and other health care providers. Most often, services are based on physicians' orders or established protocols/guidelines.
- Acute care respiratory therapists are usually assigned to patient care areas (i.e. Intensive Care Units, Emergency Department Operating Room) where they care for patients requiring specific respiratory related therapies such as mechanical ventilation, airway management and assistance with anesthesia.
- Respiratory therapists working in clinics such as asthma education and rehabilitation, in diagnostic areas such as Pulmonary Function Labs or Sleep Labs, or in community care receive referrals, mostly from physicians.
- Respiratory therapists working in private home care companies also receive referrals from physicians. Most services are provided based on contractual agreements with provincial governments.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Society of Respiratory Therapists (see Appendix B for the survey tool).

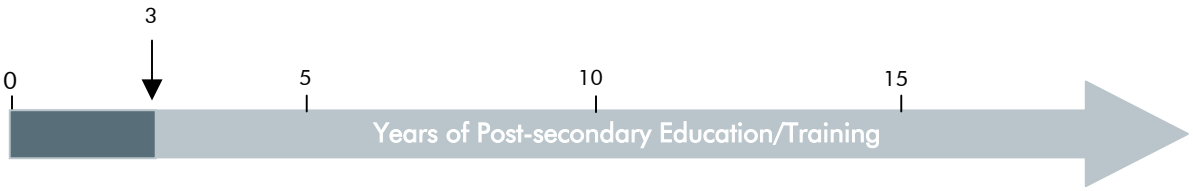
Factors That May Influence Demand for Personnel

- No information available at this time.

What Else Do We Know?

- The average age of respiratory therapists increased from 33 to 37 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- In 2001, 65% of the respiratory therapists were female (Source: Census Data, Statistics Canada).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
3	Post-secondary diploma

Changes to Education and/or Training Requirements

- Although there is not an anticipated change to education and/or training requirements within the next 5 years, many schools of Respiratory Therapy are now offering a four year degree programs and degree pathways as an option.

Possible Areas of Certified Specialization**

- Respiratory Therapists specialize in the areas of Asthma and COPD (Chronic Obstructive Pulmonary Disease) education and undergo recognized certification processes. Most other specialties are based on institutional specific training and certification processes for various clinical services such as neonatal high risk transport, incubation, arterial line insertion, tracheotomy tube changes, etc.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Society of Respiratory Therapists (see Appendix B for the survey tool).

What's Happening?

Listed are references to key research documents relating to respiratory therapists that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *The Coming RT Shortage*—Sobel, Litwin, Seville, Homuth—Winter 2000—Canadian Journal of Respiratory Therapy (http://www.csrt.com/_NewsEvents/rtshortage.pdf)

Research in Progress

- There is no information available at this time.

** Please note that this information in this section is adapted from a survey completed by the staff at the Canadian Society of Respiratory Therapists (see Appendix B for the survey tool).

Data Tables

Table RT-1. Number of Registered Respiratory Therapists* by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	*50*	*48*	*63*	*71*	*65*	*78*	*50*	*60*	*70*	*64*
P.E.I.	*7*	*6*	*6*	*11*	*14*	*17*	*14*	*13*	*14* [1]	*14* [1]
N.S.	*149*	*161*	*166*	*172*	*186*	*223*	*176*	*179*	*152* [1]	*154* [1]
N.B.	*117*	*146*	*159*	*169*	*170*	*193*	*177*	*192*	*213*	*168*
Que.[2, 3]	2,156	2,248	2,338	2,354	*2,221* [1]	2,457	2,534	2,602	2,651	2,651
Ont.[4]	*1,252*	1,572	1,572	1,628	1,658	1,727	1,812	1,816	1,846	1,923
Man.[5]	178	182	183	186	195	189	200	201	197	200
Sask.	*79*	*93*	*92*	*94*	*94*	*116*	*95*	*93*	*98* [1]	*99* [1]
Alta.[6]	600	600	620	681	680	812	812	832	867	895
B.C.	*288*	*371*	*271*	*303*	*304*	*540*	*384*	*374*	*373*	*401*
Y.T. & N.W.T.	*1*	*1*	*1*	*1*	*1*	*4*	*4*	*4*	*3* [1]	*3* [1]
Canada	***4,877***	***5,428***	***5,471***	***5,670***	***5,588***	***6,356***	***6,258***	***6,366***	***6,484***	***6,572***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized* cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

1. CIHI Estimate.
2. Non-practicing respiratory therapists are not included in the figures for Quebec.
3. Quebec data for the years 1998 to 2002 is provided by L'Ordre professionel des inhalothérapeutes du Québec. Data as of March.
4. Ontario became regulated in 1994; Ontario data for the years 1994 to 2002 is provided by the College of Respiratory Therapists of Ontario.
5. Manitoba data is provided by the Manitoba Association of Registered Respiratory Therapists and only include active registered respiratory therapists.
6. Alberta data for the years 1998 to 2000 is provided by the College and Association of Respiratory Therapists of Alberta.

Table RT-2. Number of Registered Respiratory Therapists per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	*8.7*	*8.4*	*11.2*	*12.7*	*11.8*	*14.4*	*9.3*	*11.2*	*13.1*	*12.0*
P.E.I.	*5.3*	*4.5*	*4.4*	*8.1*	*10.2*	*12.4*	*10.1*	*9.4*	*10.0*	*10.0*
N.S.	*16.1*	*17.4*	*17.9*	*18.4*	*19.9*	*23.8*	*18.7*	*19.0*	*16.1*	*16.3*
N.B.	*15.6*	*19.4*	*21.1*	*22.4*	*22.5*	*25.6*	*23.4*	*25.4*	*28.2*	*22.2*
Que.	30.0	31.1	32.2	32.3	30.4	33.5	34.4	35.2	35.7	35.5
Ont.	*11.6*	14.4	14.3	14.6	14.7	15.1	15.6	15.4	15.4	15.9
Man.	15.9	16.2	16.2	16.4	17.2	16.6	17.5	17.5	17.2	17.4
Sask.	*7.8*	*9.2*	*9.1*	*9.2*	*9.2*	*11.3*	*9.3*	*9.1*	*9.7*	*9.8*
Alta.	22.3	22.1	22.5	24.3	23.7	27.7	27.3	27.4	28.1	28.6
B.C.	*7.9*	*9.9*	*7.1*	*7.7*	*7.6*	*13.5*	*9.5*	*9.2*	*9.1*	*9.7*
Y.T. & N.W.T.	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*5.6*	*5.6*	*5.6*	*4.2*	*4.2*
Canada	***16.9***	***18.6***	***18.6***	***19.0***	***18.6***	***21.0***	***20.4***	***20.6***	***20.8***	***20.9***

Source: HPDB/CIHI

Note

See Table RT-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratio in Table RT-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

Endnotes

Sources

Figure RT-1. Calculated from data in Table RT-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure RT-2. Calculated from data in Table RT-2.

Table RT-1. 1993–1997: Canadian Society of Respiratory Therapists, Manitoba Association of Registered Respiratory Therapists Inc., College of Respiratory Therapists of Ontario, The New Brunswick Association of Respiratory Therapists Inc, Newfoundland and Labrador Association of Respiratory Therapists.

1998-2000: Canadian Society of Respiratory Therapists, Ordre professionel des inhalothérapeutes du Québec, Manitoba Association of Registered Respiratory Therapists Inc., College and Association of Respiratory Therapists of Alberta, College of Respiratory Therapists of Ontario, The New Brunswick Association of Respiratory Therapists Inc., Newfoundland and Labrador Association of Respiratory Therapists.

2001–2002: Ordre professionel des inhalothérapeutes du Québec, Manitoba Association of Registered Respiratory Therapists Inc., British Columbia Society of Respiratory Therapists, College and Association of Respiratory Therapists of Alberta, College of Respiratory Therapists of Ontario, The New Brunswick Association of Respiratory Therapists Inc., Newfoundland and Labrador Association of Respiratory Therapists.

Table RT-2. Data calculated based on Table RT-1 and population estimates from Statistics Canada shown in Appendix C.

Social Workers

Definition

Social workers promote social change aimed at improving conditions that impact on the health and well being of individuals, families, groups and communities; they provide counseling, therapy and problem solving interventions to create a functional relationship between the system and those that interact with it.

Responsibilities/Activities

The areas of practice for social workers within institutional and community health settings include: policy development, program planning, program management, research, consultation, case management, discharge planning, counseling, therapy and advocacy. Social workers use a variety of specific approaches and interventions that are largely based on principles of social justice and theories of human behavior and social systems. Modalities of service include discharge planning, networking with community agencies, counselling ranging from financial counselling to adjustment to illness counselling and psychotherapy, patient and family education, team consultation.

Practice Setting

Social workers are usually employed in hospitals, community health centers, mental health clinics, schools, advocacy organizations, government departments, social service agencies, child welfare settings, family service agencies, correctional facilities, social housing organizations, family courts, employee assistance programs and private counseling, school boards and consultation agencies.

Note: Readers are cautioned to carefully review the Methodological Notes section of this publication as well as all notes accompanying figures and tables.

Workforce

Primary Data Source: The Health Personnel Database (HPDB) at the Canadian Institute for Health Information (CIHI) utilizes data from associations (membership is voluntary) and regulatory/licensing authorities across Canada as the primary source of social worker data.

Secondary Data Source: This publication utilizes additional data from two survey sources (Labour Force Survey/Statistics Canada and Census/Statistics Canada). Both Census and LFS estimates are based on the Standard Occupational Classification E022 Social Workers.

Regulatory Environment

- The titles of Social Worker and Registered Social Worker are protected in legislation for those who meet the qualifications and standards set by the provincial regulatory bodies across Canada.
- Only three of ten provinces had legislation in place in/or prior to 1993. A portion of the increase in the number of social workers may reflect changes in legislation rather than an actual increase in the number of social workers in the workforce.
- The regulatory environment for social workers is complex in Canada, and even in provinces with regulation, not all social workers may be required to register with a provincial regulatory authority as a condition of employment (Note: the titles Social Worker and Registered Social Worker are controlled in all provinces/territories). Provinces/territories may control specific social worker titles, practice, education, or some combination thereof. For example, Saskatchewan passed an act regulating the Social Work profession in 1995. However, the current legislation controls the title Registered Social Worker but not the practice of social work. As such, registration with the Saskatchewan Association of Social Workers is not necessarily a condition of employment. For complete information, please contact the Canadian Association of Social Workers (CASW).

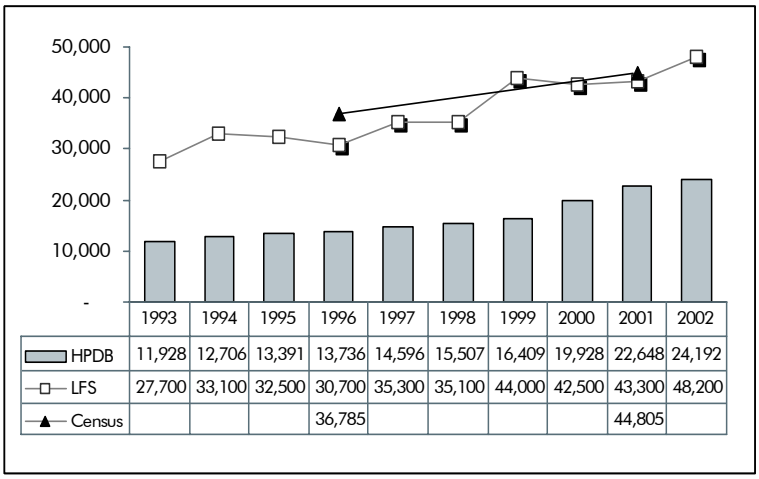
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
First Year of Regulation	1994	1988	1994	1989	NR	2000	NR	NR	1999	REG*	NR	NR	NR

NR = Not Regulated as of 2002.
REG = Regulated in 2002, year of regulation unknown.
* A list of exceptions to control titles.

Supply Trends

- During the common comparable years of 1996 and 2001, HPDB counts of registered social workers increased 64.9%, the Census estimates of employed social workers in the workplace in Canada increased 21.8%, and the Labour Force Survey (LFS) estimates increased 41.0% (see Figure SW-1).
- Census and LFS estimates of social workers were much higher than HPDB counts in both 1996 and 2001.
- As shown in Figure SW-1, HPDB data on social workers increased 102.8% from 1993 to 2002 (see Regulatory Environment for explanation).
- Table SW-1 shows the distribution of registered social workers by province from 1993 to 2002.

Figure SW-1. Number of Social Workers from Selected Data Sources, Canada, 1993–2002



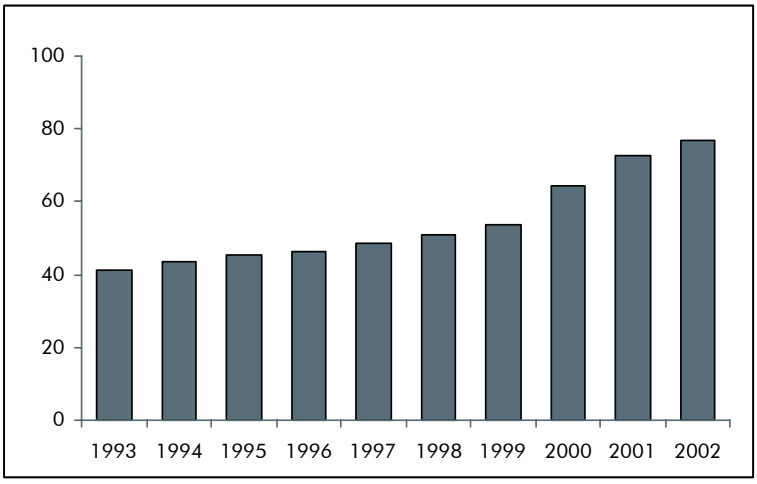
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HPDB	11,928	12,706	13,391	13,736	14,596	15,507	16,409	19,928	22,648	24,192
LFS	27,700	33,100	32,500	30,700	35,300	35,100	44,000	42,500	43,300	48,200
Census				36,785					44,805	

Sources: HPDB/CIHI, LFS/Statistics Canada, Census/Statistics Canada

Growth in Supply Relative to Population

- In 2002, there were 76.8 social workers per 100, 000 population in Canada (see Figure SW-2).
- The number of social workers per population in 2002 ranged from a low of 33.3 social workers per 100,000 population in British Columbia to a high of 183.6 social workers per 100,000 population in Newfoundland and Labrador (see Table SW-2).

Figure SW-2. Number of Registered Social Workers* per 100,000 Population, Canada, 1993–2002



Source: HPDB/CIHI

* This data includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables).

Accessing Personnel

- A nurse, occupational therapist, physiotherapist, physician, or another social worker may refer individuals.
- In some agencies/organizations, the practice may be that all clients/patients are assessed by a social worker. In other instances, people self-refer to a social worker.

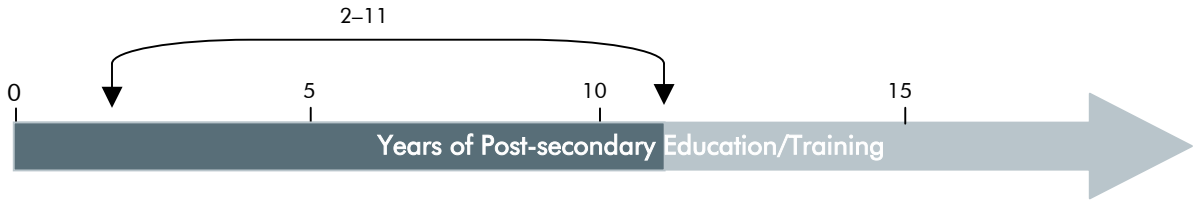
Factors That May Influence Demand for Personnel

- There is no information available at this time.

What Else Do We Know?

- The average age of social workers increased from 38 to 41 years between 1991 and 2001 (Source: Census Data, Statistics Canada).
- In 2001, the majority (79%) of social workers were female (Source: Census Data, Statistics Canada).

Entering the Profession



Number of Years	Education and/or Training Required to Enter Practice in Canada
2	Social Work Diploma (presently, graduates of the Social Work Diploma program are eligible for registration only with the Alberta College of Social Workers).
4	Undergraduate degree in social work—Bachelor degree in Social Work (BSW). (N.B. some social work schools recognize equivalent undergraduate credits, thereby shortening the number of years).
1-2	Graduate degree in social work—Masters in Social Work (MSW)—Consists of a two year program if you possess a Bachelor degree in another discipline; and a one year program if you possess a BSW.
4–5	Duration varies by school. On average, it takes 4 to 5 years to complete a Ph.D. in social work.

Changes to Education and/or Training Requirements

- Most provinces require a bachelor's degree in social work with the exception of the province of Alberta where a diploma is the basic educational requirement.
- There are no anticipated changes to education and/or training requirements for this profession in the next year.

Possible Areas of Certified Specialization

- There is no information available at this time.

What's Happening?

Listed are references to key research documents relating to social workers that are recommended** reading for health human resource planners.

Note: Reports and research identified are products of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. They are put here for interest for the user and for reference only. Authors retain all copyright privileges. Information provided is not comprehensive.

Research Reports

1. *In Critical Demand: Social Work in Canada*. Ottawa: CASW/CASSW, 2000. www.socialworkincanada.org.
2. *CASW National Scope of Practice Statement*. Ottawa: CASW, 2000. www.casw-acts.ca/Practice/RecPubsArt1.htm.
3. *CASW Statement on Preventive Practices and Health Promotion*. Ottawa: CASW, 1998. http://www.casw-acts.ca/Practice/RecPubsArt3.htm.
4. *Position Paper on Social Work and Long-Term Care*. Ottawa: CASW, 2002. www.casw-acts.ca/practice/longtermcare.htm.
5. *The Role of Social Work in Mental Health*. Ottawa: CASW, 2001. www.casw-acts.ca/Practice/RecPubsArt5.htm.
6. *Social Work Practice and Practice Wisdom in the Field of HIV/AIDS: A Research Report*. Ottawa: CASW, 1995.
7. *Canadian Social Work: HIV/AIDS (Special Issue)*. Volume 3(1). William Rowe, Editor. Ottawa: Myropen, 2001.
8. *Comprehensive guide for the care of people with HIV disease: module 6: psychosocial care: HIV psychosocial care and social work practice: ethical, professional and practical issues* [manual]. Ottawa: CASW, 1997.
9. *CASW Statement of Principles on Euthanasia and Assisted Suicide*. Ottawa: CASW, 1994.

Research in Progress

- There is no information available at this time.

** Please note that this information in this section is adapted from a survey completed by the staff at The Canadian Association of Social Workers (CASW) (see Appendix B for the survey tool).

Data Tables

Table SW-1 Number of Registered Social Workers* by Province/Territory of Registration, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.[12]	*244* [1]	650	673	676	753	838	870	946	973	976
P.E.I.[9]	*165* [3]	*170* [3]	*175* [3]	*180* [3]	*185* [3]	*190* [3]	195	195	198	198
N.S.	*596*	650	943	1,074	1,167	1,295	1,392	1,441	1,471	1,496
N.B.[11]	1,125	1,146	1,168	1,082	1,208	1,205	1,238	1,243	1,224	1,348
Que.[13]	*3,344*	*3,681*	*3,725*	*4,088*	*4,275*	*4,323*	*4,564*	*4,721*	*4,765*	*4,748*
Ont.	*3,107*	*2,977*	*3,048*	*2,977*	*3,042*	*3,038*	*3,250*	5,449 [2]	6,896	7,980
Man.[10]	*388*	*409*	*412*	*398*	*504*	*524*	*487*	*487*	*511*	*530*
Sask.[4]	*435*	*446*	*449*	*452*	*453*	*856*	*923*	*930*	*976*	*1,050*
Alta.	*1,166*	*1,220*	*1,477*	*1,485*	*1,631*	*1,829*	2,090	3,108 [8]	4,171	4,367
B.C.[5]	1,242	1,238	1,202	1,203	1,257	1,270	1,277	1,304	1,361	1,383
Y.T.[14]	*53*	*54*	*54*	*55*	*55*	*54*	*54* [1]	*26* [6]	*16* [6]	*25* [7]
N.W.T.[14]	*63*	*65*	*65*	*66*	*66*	*85*	*69* [1]	*65* [6]	*76* [6]	*77* [7]
Nun.[14]	..	..	..	..	..	..	..	*13* [6]	*10* [6]	*14* [7]
Canada	***11,928***	***12,706***	***13,391***	***13,736***	***14,596***	***15,507***	***16,409***	***19,928***	***22,648***	***24,192***

Source: HPDB/CIHI

Notes

* This data table includes both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment); data in this table are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying data tables). For ease of identification, *italicized* cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate i.e. CIHI or data provider). See additional notes below.

.. Information not available.

1. CIHI estimate.
2. Ontario became regulated in 2000. 2000–2002 data from Ontario College of Social Workers. Prior to this year membership was voluntary.
3. Estimate.
4. Data include full-time, part-time, not-employed, and retired members.
5. Data from 1993–1997 is from the British Columbia Association of Social Workers where membership is voluntary. Data from 1998–2002 is form the Board of Registration for Social Workers of British Columbia; they are the regulatory authority.
6. Data as of March 31.
7. Data as of February 23.
8. Increases in Alberta due to mandatory registration and requirement of being a member of the provincial association.
9. Prince Edward Island 1999–2002 data as of March 31.
10. Manitoba 2002 data as of November 13.
11. New Brunswick 1998–2002 data as of March 31 of the next year.
12. Newfoundland and Labrador 1994–2001 data as of February 28, the next year; 2002 data as of November 14.
13. Quebec 1993 data as of April 1; 1994–2001 data as of March 31; 2002 data as of November 15.
14. Northwest Territories 1998 data as of April 1999; Northwest Territories, Nunavut, and Yukon 2000–2001 data as of March 31, the next year; 2002 data as of February 23, 2003.

Table SW-2 Number of Registered Social Workers per 100,000 Population by Province/Territory, Canada, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
N.L.	42.3	113.8	119.3	121.3	136.9	154.3	161.0	176.4	182.4	183.6
P.E.I.	124.1	126.5	129.1	131.8	135.2	138.4	141.2	140.9	142.1	141.1
N.S.	64.4	70.1	101.4	115.1	124.7	138.1	147.6	152.8	155.9	158.3
N.B.	149.9	152.5	155.3	143.6	160.2	159.9	163.7	164.6	162.0	178.2
Que.	46.5	50.9	51.3	56.1	58.5	58.9	62.0	63.8	64.1	63.6
Ont.	28.9	27.3	27.6	26.7	26.9	26.6	28.0	46.3	57.6	65.9
Man.	34.6	36.3	36.4	35.1	44.4	46.0	42.6	42.5	44.5	46.1
Sask.	43.2	44.1	44.2	44.3	44.3	83.4	90.1	91.2	96.2	104.0
Alta.	43.4	44.8	53.5	52.9	56.9	62.4	70.1	102.5	135.2	139.6
B.C.	34.2	33.1	31.3	30.7	31.5	31.7	31.6	32.0	33.0	33.3
Y.T.	175.7	178.3	172.8	170.5	171.9	173.9	177.2	86.0	53.2	83.9
N.W.T.	156.6	157.3	156.9	157.8	158.9	207.7	169.2	158.5	184.5	185.9
Nun.	..	..	..	..	..	..	..	46.8	35.3	48.6
Canada	**41.4**	**43.6**	**45.4**	**46.1**	**48.5**	**51.1**	**53.6**	**64.4**	**72.5**	**76.8**

Source: HPDB/CIHI

Notes

See Table SW-1 for notes on the numerator data used in the calculation of the personnel per 100,000 ratio in Table SW-2. Personnel per population ratios are revised annually, using the most recent Statistics Canada Population Estimates (see Appendix C).

.. Information not available.

Endnotes

Sources

Figure SW-1. Calculated from data in Table SW-1 as well as data provided by Statistics Canada (Census and Labour Force Surveys).

Figure SW-2. Calculated from data in Table SW-2.

Table SW-1. Newfoundland and Labrador Association of Social Workers, Nova Scotia Association of Social Workers, New Brunswick Association of Social Workers, Prince Edward Island Association of Social Workers/ Prince Edward Island Social Work Registration Board, Ordre professionnel des travailleurs sociaux du Québec, Manitoba Institute of Registered Social Workers, Saskatchewan Association of Social Workers, Alberta College of Social Workers, Board of Registration for Social Workers of British Columbia, Government of Yukon, Northwest Territories Association of Social Workers, Ontario College of Social Workers and Social Service, and the Canadian Association of Social Workers (CASW).

Table SW-2. Data calculated based on Table SW-1 and population estimates from Statistics Canada shown in Appendix C.

Methodological Notes

This information will provide a better understanding of the strengths and limitations of the data, and of how they can be effectively used and analyzed. This information is of particular importance when making comparisons with other data sources, and especially when drawing conclusions regarding changes over time.

The Health Personnel Database (HPDB)

Background

The Health Personnel Database (HPDB) contains information on a number of health care professionals in Canada. The type of information maintained on each profession varies depending on availability of data from over 300 different providers. It is the only national database of its kind that maintains information on such a broad scope of different health personnel in Canada.

Data in HPDB represent aggregate counts (head-counts) by province/territory and year for selected health professions. At minimum, data include the number of voluntary members of health professional associations by province/territory and year. Where possible, data on registered, active-registered or active-registered employed health personnel are provided from the appropriate regulatory authority. Education data for some health personnel groups are maintained as well. Individual record level data are not collected or maintained in Health Personnel Database (HPDB). Individual record level data are not collected in HPDB. The data are stored in Microsoft Excel and every two years, a publication is produced examining the most recent ten-year trends in health personnel in Canada.

Health Personnel Trends in Canada, 1993–2002 (formerly the *Health Personnel in Canada* series) is the most recent iteration of this publication series, and is designed as a reference document to assist health services management and research.

Target Population

The population of interest for the Health Personnel Database (HPDB) is all health personnel, **for selected health occupations**, that may be in or available to enter the workforce in Canada. The purpose of the HPDB is to provide general time-series comparison of health personnel at a national and provincial level.

Data Collection and Data Processing

The data collection processes for the publication *Health Personnel Trends in Canada, 1993–2002* has been enhanced from the collection process used for the publication series, *Health Personnel in Canada*. These changes reflect the use of standardized data collection instruments, increased verification of data by data providers and others, and an enhanced understanding of the historical regulatory environment of health personnel in Canada.

To begin the data collection process, CIHI acquired the names and addresses of potential data provider organizations through a variety of sources. A primary list of national health organizations served as the starting point for most of the subsequent provincial contacts. Data collection was organized so that data were requested first from national and provincial organizations. Subsequent to this step, information requests were sent to universities and colleges providing professional health programs.

In 2002, CIHI began the data collection cycle for *Health Personnel Trends in Canada, 1993–2002*. Health personnel data from 1991 to 2000 was entered into the Phase I Questionnaire (see Appendix A) and submitted to known data providers for verification and update (i.e. with 2001 and 2002 data). The Phase I Questionnaire asked data provider to:

- provide detailed information on regulation (historical and current);
- categorize data already provided for the years 1991 to 2000 based on CIHI defined membership categories;
- provide updated 2001 and 2002 data; and
- identify other data that may be of interest for future collection.

The Phase I data requests were sent in the fall, beginning in late 2002 and finishing throughout 2003. The response target for returned data was set at approximately one-month post-receipt of the questionnaire. To the credit of all data providers, data capture was close to 100%. The only cases where data was not provided were instances of catastrophic data loss by a provider or where a data provider assessed their own data as not fit for use.

In the interest of enhancing the information available in for *Health Personnel Trends in Canada*, a second survey was issued to selected stakeholders. In general, the Phase II Questionnaire (see Appendix B) asked respondents to provide:

- an updated description of their profession;
- information on education and other requirements for practice;
- information on the practice environment; and
- health human resources management related research activities completed, or currently underway.

The 2002–2003 data collection cycle was the first time the Phase II survey was implemented. Recipients of the Phase II survey also provided feedback on their respective personnel-specific section of the publication. Phase II surveys were sent to recipients in the summer and all recipients responded with data and information. Reports, research and information provided as part of Phase II collection represent the responses of independent individuals and/or organizations. Their opinions and/or views, as well as content, do not necessarily reflect those of CIHI. The Phase II survey was not intended to be comprehensive, and other sources and perspectives on health human resources issues, as they relate to specific health professions, should also be considered.

Once Phase I and Phase II data were received, CIHI staff updated HPDB and consolidated all of the information gathered into the personnel-specific sections of the publication. Phase II recipients were offered the opportunity to review completed sections and provide feedback. Any data issues discovered by CIHI staff or Phase II reviewers were followed up with the data providers.

Data sources outside of HPDB collection processes, both internal and external to CIHI, were utilized in the production of the publication, *Health Personnel Trends in Canada, 1993–2002*. These other data sources are described in the following section.

Other Data Sources Used in this Publication

Data Sources Internal to CIHI

Southam Medical Database (SMDB)

The Southam Medical Database (SMDB) contains information on physicians in Canada and is maintained by the Business Information Group (BI Group), a division of Hollinger Canadian Newspaper L.P. (formerly, Southam Medical Group, Southam Inc.) of Scarborough, Ontario. The BI Group uses the database to produce the Canadian Medical Directory and mailing lists for commercial purposes. CIHI purchases copies of this database annually and uses the data to produce publications, handle ad hoc requests for information, and fulfil special client requested projects. The SMDB at CIHI contains individual record level data, longitudinal data about each physician's age, gender, school and year of graduation from medical school and specialty.

The SMDB incorporates information from a variety of data sources, including licensing authorities and postgraduate training programs. Once a physician is in the database, he or she receives a notice in the mail each year requesting that information stored in the directory be updated.

For the purposes of this publication, an "active" physician is defined as one who meets the following criteria:

- has an MD degree;
- not in post-graduate training; and
- defined as "active" on SMDB.

This definition explicitly excludes physicians who are confirmed to have retired or semi-retired, deceased, moved abroad, do not have a license to practice in their current province of residence or who report a temporary leave of absence (e.g. temporary retirement or sabbatical) and those in the military.

Physicians in postgraduate training (residents) are identifiable in the database and are treated as a separate category, and excluded for the purposes of most published data. However, a physician who has obtained specialty certification, is billing a provincial medical plan for health services, but is doing a clinical fellowship in some discipline, would be considered to be an active physician. All resident data in this publication are derived from the Canadian Post-M.D. Education Registry (CAPER) and for the purposes of some analysis was added to data from SMDB in order to reflect counts of physicians including residents.

For the purpose of this publication, two physician types are identified: family medicine physicians (which includes uncertified specialists and general practitioners, as well as family medicine and emergency family medicine specialist physicians) and specialists physicans. Specialty is based on most recent specialty certification achieved within Canada. SMDB specialist counts do not include uncertified/foreign-certified specialist physicians and may, therefore, differ from other sources of provincial/territorial physician data that categorize physicians on some other basis (e.g. functional specialty, payment specialty, provisional license or other).

For more information, please visit www.cihi.ca or contact Consultant, Physician Databases at smdb@cihi.ca.

Regulated Nursing Databases at CIHI

CIHI maintains national databases on three regulated nursing professions in Canada: Registered Nurses (RNs), Licensed Practical Nurses (LPNs) and Registered Psychiatric Nurses (RPNs). Data collected for each of these distinct professions are based on nationally comparable data standards and specifications; data dictionary and data submission specifications for all three systems are available at www.cihi.ca. Each provincial (and in some cases territorial) regulatory authority submits to CIHI a sub-set of data collected from each member during the annual registration period.

All three databases collect information on the supply and distribution of regulated nursing professionals in Canada. While the Registered Nurses Database (RNDB) has longitudinal data from 1980 to the present, Licensed Practical Nurses Database (LPNDB) and Registered Psychiatric Nurses Database (RPNDB) data first became available in 2002. Prior to 2002, LPN and RPN data was collected through HPDB processes and the development of both the LPNDB and RPNDB systems represent a fundamental series break. As such, LPN and RPN data presented in this publication for years prior to 2002 are not directly comparable to post-2001 data. For all three regulated nursing groups, CIHI data will differ from provincial/territorial data reported elsewhere due to CIHI collection, processing and reporting methodologies.

For more information on any of CIHI regulated nursing databases, please visit www.cihi.ca or contact Consultant, Regulated Nursing Databases at nursing@cihi.ca.

Data Sources External to CIHI

The Canadian Post-M.D. Education Registry (CAPER)

The Canadian Post-M.D. Education Registry (CAPER) was established in 1986 through the co-operation of national medical organizations with an interest in the post-M.D. clinical education of physicians in Canada. CAPER has a mandate to provide accurate information, which may be used for physician resources planning on a national, provincial and regional basis. CAPER maintains individual record-level, longitudinal socio-demographic data of all trainees under supervision of each Canadian faculty of medicine and all post-M.D. trainees (residents and fellows) in training positions on November 1 of the given academic year. For more information on CAPER, please visit www.caper.ca.

For the purposes of specific analysis within this publication, CAPER resident data were added to the counts for physicians (SMDB) to determine the total number of physicians including residents. These counts will be an overestimate of the number of physicians because the CAPER data for residents include physicians that could be recorded on SMDB as physicians. For example, a physician that was working as a Family Medicine Physician for a period of time and then returned for further training in a residency program would appear on SMDB as a physician and in the CAPER database as a resident. According to CAPER publications in 2000–2001 and 2001–2002, there were 112 and 102 respectively, re-entries of Canadian M.D. graduates to postgraduate training positions. Although this gives an indication of the potential level of double counting, it is not exact. Without doing a linkage between the two databases, it is impossible to know if the physicians who were counted as re-entries to postgraduate training in the CAPER data, were actually “active” on SMDB.

Canadian Information Centre for International Credentials (CICIC)

The Canadian Information Centre for International Credentials (CICIC) collects, organizes, and distributes information, and acts as a national clearing house and referral service to support the recognition and portability of Canadian and international educational and occupational qualifications. CICIC collects data about procedures for recognizing academic and occupational credentials in different Canadian jurisdictions. This information is stored in a regularly updated database covering more than 800 professional organizations. The CICIC website provides up-to-date summary and detailed information on entry to practice and regulatory requirements for specific health occupations. Some information from the CICIC website was adopted for use in this publication. For further information on the CICIC please visit www.cicic.ca.

Statistic Canada Population Data

All population data used in this document are from the Statistics Canada publication *Quarterly Demographic Statistics July–September 2002* (Catalogue no. 91-002-XIB, Volume 16, no. 3). All population sources are footnoted where applicable. Please refer to Appendix C for population data used to generate personnel per 100,000 population ratios used in this publication.

Please note that CIHI annually revises historical data with population-based calculations, such as "personnel per 100,000 population", to reflect more accurate estimates available from the Demography Division of Statistics Canada. Therefore, historical figures presented in this publication will not necessarily match figures presented in previous publications, media releases, ad hoc queries, or special studies.

Statistics Canada information is used with the permission of the Minister of Industry, as Minister responsible for Statistics Canada. Information on the availability of the wide range of data from the Statistics Canada can be obtained from Statistics Canada's Regional Offices, its World Wide Web site at http://www.statcan.ca, and its toll-free access number 1(800) 263-1136.

Labour Force Survey

The Labour Force Survey is a monthly survey conducted by Statistics Canada involving approximately 53,000 Canadian households, involving almost 110,000 respondents.

The Survey provides current monthly estimates of total employment (including self-employment) and unemployment by industry including health, and by occupations based on the Standard Occupational Classification (SOC). The 1991 SOC is the current standard used for the Labour Force Survey (please see Appendix H). Demographic information (e.g. age, sex and education) as well as detailed employment information is collected (e.g. employment/unemployment, full-time/part-time employment status; actual hours of work; and employee hourly and weekly wages).

The Labour Force Survey data used in this publication is composed of those members of the civilian non-institutional population 15 years of age and over who, during the reference week, were employed or unemployed. Yearly estimates (1991 and 1993–2002) used in this publication are the average of the 12 months of the given year.

The primary objective of the Labour Force Survey (LFS) is to provide reliable monthly estimates of employment and unemployment for Canada and the provinces, and to provide descriptive and explanatory data (by demographic characteristics, industry, occupation etc.) for each group. While the LFS provides detailed and current data on the health personnel labour market across the country, it provides only a sample of the total supply and the sample is relatively small for many health occupations. In addition, the LFS produces estimates only for the ten provinces.

The survey sample size was never intended to generate estimates at the unit group level (e.g. the 4 digit code that identifies D011 Specialist Physicians within the increasingly larger minor group D01 Physicians, Dentists and Veterinarians, major group D0 Professional Occupations in Health and broad occupational category D Health Occupations). In fact, Statistics Canada discourages use of estimates at this level because of concerns about sampling and non-sampling error, especially when data are cross tabulated by other variables (e.g. gender, age-group, full-time/ part-time status). With this caution in mind, CIHI purchased data with which to explore in more detail the quality of the data reported at the health occupation specific level. The occupation specific data are noted with each health personnel section and a consolidated data table is available in Appendix D. Consolidated LFS average age and gender data are available in Appendix G.

A coefficient of variation (CV) provides an indication of the precision of an estimate. CVs were generated for LFS estimates of health occupations based on: estimated total counts, by occupation for Canada; estimated total counts, by occupation and gender for Canada; and estimated total counts, by occupation and average age for Canada. LFS data in this publication should be used, subject to the following conditions:[14]

- Estimates with CVs less than or equal 16.5 require no release restrictions: data are of sufficient precision that no special warnings to users or other restrictions are required.
- Estimates with CVs greater than 16.5 but less than or equal 33.3 can be released with caution: data are potentially useful for some purposes but should be accompanied by a warning to users regarding their precision.
- Estimates with CVs greater than 33.3 should not be released: data contain a level of sampling error that makes them so potentially misleading that they should not be released in most circumstances.

LFS estimates with CVs greater than 33.3 do not appear in this publication. LFS estimates with CV's between 16.5 and 33.3 will appear in this publication with a notation, cautioning readers that the estimate may be unreliable.

For further information about the impact of sampling error and non-sampling errors on LFS estimates or other questions about the quality of LFS data, please visit www.statcan.ca, contact Client Services at 1 (866) 873-8788 or e-mail: labour@statcan.ca.

[14] Statistics Canada methodologists specifically generated coefficients of variation and designed these guidelines for use with the data presented in this publication. The conditions of use should not assumed to be applicable to any other estimates derived from the Labour Force Survey.

Census

The census enumerates the entire Canadian population, which consists of Canadian citizens (by birth and by naturalization), landed immigrants, non-permanent residents together with family members who live with them, and landed immigrants who are temporarily outside the country on Census Day. By law, Statistics Canada must take a census every five years, and every household in Canada must fill a Census questionnaire. Four out of five households receive the short form while the remaining one in five receive a long-form questionnaire. The short-form includes seven questions: the respondent's name, sex, date of birth, marital and common-law status, family and household relationships and mother tongue. The long-form includes the seven questions plus an additional fifty-two questions on topics such as education, ethnicity, mobility, income and employment. Estimates will differ from Census estimates reported elsewhere using different inclusion/exclusion criteria. The last Census was conducted on May 15, 2001.

Each Census conducted in 1991, 1996 and 2001 reflects a 1/5 sample of the Canadian population, and provides point-in-time estimates of the supply of health personnel by occupational class based on the 1991 Standard Occupational Classification (SOC).

Census data reported for health occupations included in this publication reflect estimates of those members of the non-institutional population that were 15 years of age and over with Labour Market Activity in the week (Sunday to Saturday) prior to the Census Day, classified as Employed and indicated a Place of Work inside of Canada.

Census estimates of health occupations by sex (gender) and average age are based on responses from the entire Canadian population. Census estimates of health occupations by average age are based on age (i.e. age at last birthday, as of the Census Day), which is derived from date of birth. Date of birth is collected for the entire Canadian population and persons who were unable to give the exact date of birth were asked to give the best possible estimate. For each Census all respondents are required to specify whether they were male or female. Consolidated Census average age and gender data are available in Appendix G.

Due to the large sample size involved in the Census, and through discussions with Statistics Canada, it was felt that for the purposes of reporting counts of health occupations at a national level, including analysis by gender and average age, no extraordinary data quality measures were required (this was not the case for the Labour Force Estimates, see below). This decision may not hold true for other Census data. Census is limited to looking at changes in data between census years. This is not a concern for the purposes of the cross-validation exercise in this publication, but may be a potentially significant issue for those seeking to monitor and evaluate health occupations more frequently than every five years.

The Census is a large complex survey, and for census data in general, the principal types of error involved relate to coverage, non-response errors, response errors, processing errors, and sampling errors (which apply only to the supplementary questions on the long form). Statistics Canada has extensive on-line documentation exploring these and other data quality issues, including sampling and weighting, confidentiality and random rounding procedures. Please visit www.statcan.ca or contact the Social Survey Methods Division via the Statistics Canada's toll-free general enquiries line at 1 (800) 263-1136 for further information.

To monitor and ensure the continued quality of its data, the LFS and the Census have extensive data quality programs. A whole range of quality indicators are produced on a regular basis and carefully analysed by Statistics Canada staff. For further information about the about the quality of Census and Labour Force Survey data or any other Statistics Canada product, please visit www.statcan.ca or contact Statistics Canada's Client Services at 1 (866) 873-8788.

Comparison of Labour Force Survey, Census[15] and HPDB Administrative Data

This publication examines counts of health occupations from two sources of supply-based data on health personnel in Canada: administrative data collected from associations, regulatory authorities and existing national administrative databases; and two national surveys that provide estimated counts based on the classification of respondents into occupational groups. The purpose of this examination is two fold. Firstly, for selected common years of interest, to cross-validate the face validity of administrative data counts maintained in the Health Personnel Database (HPDB) at CIHI with the estimated health occupation counts available from Statistics Canada's Census and Labour Force Survey (LFS). Secondly, to provide readers with demographic data from survey sources, where administrative information systems cannot currently provide such information (the current publication provides gender and average age data from the 1991 and 2001 Census for selected health personnel groups). A consolidated comparison data table is available in Appendix G.

This examination should not be interpreted as providing a determination of which data source is more appropriate for use—such a determination must be made by individual data users on a case-by-case basis, with full knowledge and appreciation for the benefits and limitations inherent in each data source.

When registration with a regulatory authority is a condition of employment for a particular health occupation, data collected from administrative sources can provide sufficient coverage and allow reliable in enumeration of the entire population of interest. In fact, administrative counts often serve as the basis for the development of sampling frames for surveys. However, not all of the 21 health personnel groups included in the Health Personnel Database (HPDB) are regulated, or are subject to regulation throughout all years of interest. In addition, although attempts are made to apply standardization to the collection of data in HPDB, standardized, nationally comparable data are not available for the majority of health personnel groups in Canada. Currently, only registered nurses, licensed practical nurses, registered psychiatric nurses and physicians have administrative data collected nationally that are based on standardized collection specifications. Without standards, data may be difficult to define and may not provide a sufficiently accurate enumeration of health personnel in Canada. Data collection for the HPDB is done by survey, however, as data from the HPDB are not extrapolated from a sample of the population, the results are not prone to particular types of sampling error. Additional limitations of the administrative data available from the HPDB are outlined in the Data Quality section of the Methodological Notes.

The primary limitations that influence the comparability of survey data (e.g. Census and the LFS) with HPDB are: the self-reported nature of survey data, the classification of health occupations, and inclusion/exclusion criteria.

[15] The concepts, definitions and questions asked in the Census and the Labour Force Survey are similar. However, users should be aware that some differences do exist. In addition, there are differences in target populations, enumeration methods, samples size, weighting systems and reference period.

Both the Census and the LFS represent estimates based on the self-reported responses of a sample of the Canadian population. All identified discrepancies, logical inconsistencies and missing information are resolved either automatically by the Statistics Canada processing system or through manual intervention. This is accomplished through the imputation of logically consistent values. Where possible, deterministic imputation is used to resolve any inconsistent or missing information using other information provided by the respondent. When this is not possible, information for an individual may be carried forward from the previous month (if it exists) under certain circumstances. In other instances hot deck imputation is used, which involves copying information from another individual (i.e. a "donor") with similar characteristics. Arguably, administrative data collected for registration purposes is also self-reported. However, when registration is a condition of employment in a particular health occupation, there should be greater confidence that the administrative data, at the very least, is able to capture those personnel that register and meet the qualifications of registration set by a regulatory authority for practice in a particular health occupation. The ability of individuals to self-identify their occupation on a survey, without further scrutiny, may lead to inappropriate occupational classification of personnel (for example does the response "nurse" identify an individual as a registered nurse, licensed practical nurse, registered psychiatric nurse or some other type of nurses aid). In addition, while administrative systems categorize regulated health occupations based on assessments of completion of specified education/training, successful examination or on certified specialization, individuals may self report their occupation on a survey on some other basis.

Both the LFS and the Census use standardized classification systems to classify survey respondents into occupations. The LFS and the Census estimates used in this publication are based on the 1991 Standard Occupational Classification (1991 SOC). The LFS presently uses the 1991 SOC. The 2001 Census used the 2001 National Occupational Classification for Statistics (2001 NOC-S), which is a revision of the 1991 Standard Occupational Classification (1991 SOC). The 1991 SOC was used to code occupation data from the 1991 and 1996 Censuses. Data prior to 2001 cannot be converted to 2001 NOC-S standards, however, Statistics Canada can reorganizes the 2001 data to the 1991 SOC structure for those wishing to compare pre-2001 Census years to post-1996 census years. All LFS and Census data used in this publication are based on 1991 SOC. The entire 1991 SOC and 2001 NOC-S classification structures are available in an online, search capable format at the Statistics Canada website (www.statcan.ca). For example purposes, Appendix H, illustrates the 1991 Standard Occupational Classification codes for Category "D" Health Occupations.

The SOC 1991 provides a systematic structure to classify, not simply health, but the entire range of occupational activity in Canada based on the kind of work performed. The classification seeks to define an occupation as a collection of jobs that are similar in the work performed and skill level involved. Individual health occupations are defined at the unit group level (e.g. D011 Specialist Physicians) and data below this level of occupational classification are not available. For some health personnel groups (e.g. specialist and family medicine physicians) the 1991 SOC unit group, exclusion criteria and the listed example titles appear to isolate an individual health personnel group very well. However, for many health personnel groups in this publication this is not the case, particularly for some numerically smaller professions (e.g. Midwives). Some health personnel groups, such as Registered Psychiatric Nurse, are subsumed under occupational categories with other occupations so numerically large (in this example, Registered Nurses) that their distinct characteristics are unrecognizable. For standardization purposes and to increase sample sizes at smaller areas of aggregation (e.g. by province, gender or age group), the 1991

SOC serves the needs of survey methodologies by grouping numerically smaller (but functionally similar) health personnel groups together. However, this approach may makes these same survey instruments an ineffective means of monitoring and evaluating very specific health personnel groups and most certainly presents an obstacle for comparison with health personnel group specific administrative data sets.

Data standards used to define variables in both the Census and the LFS ensure comparability across years. For example, for all years of data, Census counts used in this publication reflect estimates of the number of health personnel employed in the labour force in Canada. The same foundation of standardized definitions and comparable data does not exist for health personnel groups outside of physicians and the registered nursing groups. Data from HPDB, depending on the particular personnel group, may reflect total registered, active registered, active registered employed, voluntary members or some combination thereof. For certain health personnel groups, the definition in use will change during the years under investigation because of regulatory changes or some other reason. Lack of national data standards around the collection of administrative data for most health personnel groups in Canada makes comparisons with other existing data sources difficult.

Registration as a Condition of Employment vs. Membership with a Voluntary Association

In many cases, data tables throughout this publication include both registered (membership with a specific data provider is required as a condition of employment) and voluntary membership data (mandatory registration with the data provider is not a condition of employment). These data are appropriate for some purposes but users should have a clear understanding of the data quality limitations (over-coverage and/or under-coverage—see Data Quality Section) associated with particular sources of data. For ease of identification, italicized cells in a table indicate the presence of voluntary membership data or estimated data (all estimated data are accompanied by superscript notes identifying the source of the estimate—i.e. CIHI or data provider).

Although great effort has been taken to accurately reflect the regulatory environment for each health personnel group included in this publication, gaps in understanding still exist. CIHI, with the continued support of HPDB data providers across Canada, will continue to refine the information available to users on which to make informed decisions.

Northern Territories Data

CIHI attempts to collect data from each province and territory in Canada. On April 1, 1999, the central and eastern portions of the Northwest Territories became the new territory of Nunavut. For some professions (for example, physicians and registered nurses), Nunavut specific data are provided in this publication. In many cases, however, data providers have combined Nunavut and Northwest Territory data or data for all three northern territories.

Descriptions of Health Occupations

Occupational descriptions have been provided for each type of health personnel. National associations[16] provided the majority of the professional descriptions based on criteria outlined in the Phase II data collection. The descriptions for each of the three nursing groups (RN, LPN, and RPN) were provided by the nursing team at CIHI, and the descriptions for Chiropractors, Medical Laboratory Technologists, Psychologists, and Pharmacists were adopted from the Human Resources Development Canada's National Occupational Classification with the permission of the Minister of Public Works and Government Services Canada, 2001.

Entry to Practice Requirements

Entry to practice requirements refers to the range of academic and/or experiential criteria, which are necessary for an individual to be eligible to practice a profession in Canada. Entry to practice information available in this publication was gathered as part of the Phase II collection activities, and will appear in the Entering the Profession and the Changes to Education and /or Training Requirements sections for each health personnel group. Readers are cautioned that the information collected may not be comprehensive.

At the time of publication, the Conference of Deputy Ministers (CDM) of Health had requested its Advisory Committee on Health Delivery and Human Resources (ACHDHR) to provide policy advice and recommendations on how to improve the assessment of requests for changes in entry-to-practice credentials for health professions. The objective of this process was to develop recommendations regarding principles and policies in order to assist government in determining whether a request for a change in an entry-to-practice education credential is based on a comprehensive, impartial process, which serves the interest of patient care and the effectiveness of health care delivery in their respective jurisdictions. To this end, on October 17, 2003 the Working Group on Entry-to-Practice Credentials launched the one-month consultation period with a letter to national stakeholders requesting their participation in the web-based consultation. Readers are encouraged to visit http://www.healthcanada.ca/credentials for more information.

Education Data

Counts of graduates of health professional educational/training programs are provided for health personnel groups where the universe of possible Canadian educational/training programs is known, and sufficient data are available. Education data may reflect graduates of Canadian educational institutions, candidates of a specific competency exam and/or candidates who passed specific competency exams. Additional training (e.g. post M.D. training required to enter medical practice) may be required before entering the workforce. Some education data previously published in the series *Health Personnel in Canada* has been removed for data quality reasons.

[16] The organization that completed the Phase II survey is identified in each personnel-specific section throughout the publication.

Computations

The computation for the population per health professional is calculated for each province/territory as follows:

$$\frac{\text{NUMBER OF HEALTH PERSONNEL}}{\text{POPULATION}} \times 100{,}000$$

Population data are updated annually based on the general population estimates from Statistics Canada.

Estimation

Where feasible, estimates were obtained from individual data providers. In circumstances where such estimates could not be obtained, and where appropriate, CIHI produced estimates. In all cases, CIHI estimates were prepared by applying the average Canadian growth rate over the previous five years. In the tables, all estimates are *italicized* and footnoted. Summarized data (e.g. column totals) that contain estimates (or voluntary membership data) are also *italicized*.

Privacy and Confidentiality of Data

The release of data in CIHI publications, media releases, the CIHI website, ad hoc requests and special studies is governed by CIHI's Privacy Principles. These principles are set out in the document *Privacy and Confidentiality of Health Information at CIHI: Principles and Policies for the Protection of Health Information and Policies for Institution-Identifiable Information 3rd edition*. The document can be located at the following URL: http://secure.cihi.ca/cihiweb/en/downloads/privacy_policy_priv2002_e.pdf.

The principles are based on Schedule 1 of the federal *Personal Information Protection and Electronic Documents Act (PIPEDA)* to safeguard the privacy and confidentiality of data received by CIHI.

One of the objectives of CIHI's Privacy Principles is to avoid disclosure of an individual's identity. This means that generally table cells containing fewer than five observations are not reported. However, exceptions are made where it is determined that an individual's identity cannot be ascertained from the information provided. This may occur where the geographic area or population being reported is very large, and there are few other data elements that could lead to re-identification of individuals.

The publication series *Health Personnel Trends in Canada* includes tables with cells reporting fewer than five observations. The tables were reviewed by the Health Human Resources program area in conjunction with the CIHI Privacy Secretariat. It was determined that due to the high level of aggregation, the professional nature of the information and non-reporting of person identifiable information that the tables do not compromise the confidentiality of information being reported and will add to the analytical value of the data being reported.

Data Quality

To ensure a high level of accuracy and usefulness in data dissemination, CIHI has developed a Framework for assessing and reporting the quality of data contained in it's databases and registries. The Framework focuses on five dimensions of data quality: Timeliness, Accuracy, Usability, Comparability and Relevance.

Timeliness, Usability and Relevance are described briefly in the paragraphs below and Accuracy and Comparability are described in further detail.

Timeliness is achieved by meeting CIHI production schedule deadlines (data are collected, analyzed and released in a timely manner).

Usability comprises the availability and documentation of the data, and the ease of interpretation. The Methodological Notes section and detailed notes accompanying all data tables in this publication contribute to Usability, as the limitations of data interpretation are clearly outlined. The addition of information on the historical and current regulatory environment for each health personnel group and *italics* within table cells identifies data based on estimates or voluntary membership sources, enhances the ability of readers to assess the suitability of data for specific usage.

The Relevance of the dataset includes the adaptability and value of the data: while there continues to be strong interest from decision-makers, researchers and the media about the value of collecting health personnel data, outside of physician and nursing data, significant limitations exist depending on the intended use. Data in HPDB are useful for identifying trends in health personnel in Canada. However, it is inappropriate to infer from total numbers or population ratios, the adequacy of health personnel resources. Various factors influence whether the supply of health personnel is appropriate, such as:

- distribution and location within a province/territory (having the highest rate of personnel/100,000 population may mean little to rural patients, if all personnel are concentrated in a distant urban centre);
- type and mix of personnel and level of specialization (for example, specialist physicians provide a different range of services than family medicine physicians);
- access to hospitals, health care facilities, technology and other types of health personnel (having the lowest rate of personnel/100,000 population may mean less to rural patients, if technology (telehealth, rapid transport) allow appropriate access to personnel and services concentrated in a distant urban centre);
- needs of the population e.g. demographic characteristics and health problems of the underlying population;
- level of service being provided by health personnel (e.g. Full-time vs. Part-time);
- age and gender of the health personnel population; and
- societies' perceptions of required levels of service.

For planning purposes at the provincial, regional and health district level, more appropriate data sources may be available. For example, the Newfoundland and Labrador Health and Community Services Human Resource Planning Steering Committee (established by the Minister of Health and Community Services) has undertaken efforts to coordinate and direct an integrated health human resource plan for their province; these activities included the collection of health personnel specific data. Please visit www.nlhba.nf.ca for more information.

The assessment below, relates to HPDB data[17] collected via the Phase I survey. This section outlines where caution must be applied when analyzing HPDB data presented in *Health Personnel Trends in Canada, 1993–2002*.

Accuracy

Accuracy is an assessment of how well the data reflect the reality it is supposed to represent.

Under-Coverage

Under-coverage results when data that should be collected for the database are not included.

Since the purpose of HPDB is to collect and maintain data on "selected" health personnel groups, data for many professions important to the health system and the health of Canadians are not reflected in HPDB or this publication. At a national level some sense of the gap between what is collected in HPDB and actual number of health personnel can be seen in the comparison of HPDB with the national survey estimates from Census and the Labour Force Survey (see Health Personnel in Canada—Overview section).

When membership in a professional organization is voluntary, the number of health professionals may be underrepresented. If there is no obligation for a member of the health profession to register with the professional organization, a certain percentage will not join. As a result, the memberships vary between years, between groups, and between jurisdictions. The use of voluntary membership data as a proxy for the population of various professional groups is still necessary in some instances because an accurate source of the required information does not exist or was not available at time of printing. All voluntary membership data, including summarized data (e.g. column totals) that are found in tables are identified with *italics*.

In Canada, legislation effecting health personnel is the responsibility of provincial/territorial governments. For many of the health personnel groups included in this publication, 2003 marks the first time a national review of the historical regulatory environment has been completed. In general, regulated health professional organizations are able to provide more complete and accurate data. In addition, health professional groups that have been regulated for a longer period of time tend to have more established data collection processes than groups that have recently become regulated. For these reasons, the majority of groups included in HPDB reflect the larger and more established occupations. When available, regulatory information (e.g. initial year of regulation) is presented with notes identifying the nuances of individual provincial/territorial legislation. However, users are cautioned that documentation and understanding of the data implications of differences in legislation are not complete. It may not be known, for example, whether the legislation provides for the exclusive provision of services falling within a particular scope of practice, or simply reserves the use of certain titles. If legislation only protects

[17] Data quality documentation for the Southam Medical Database (SMDB) and the Regulated Nursing Databases (LPNDB, RPNDB and RNDB) are available from the respective CIHI program areas and/or publications (both can be accessed at www.cihi.ca).

the use of specific titles (e.g. registered social worker) then individuals practicing under a "slightly" different title (e.g. social worker) may not be covered by legislation, and as a result not be required to register as a condition of employment. Data collected within this regulatory environment would potentially undercount the number or personnel (for the purposes of this example, the number of social workers).

Counts of graduates of health professional educational/training programs are provided for health personnel groups where the universe of possible Canadian educational/training programs is known, and sufficient data are available. Some education data previously published in the series *Health Personnel in Canada* has been removed because of data quality concerns identified during the 2002–2003 collection cycle. Where education data are presented, the number of graduates from various health-training programs may be underestimated in the tables. For some professions, not all post-secondary institutions provided information regarding programs and graduates. These instances are clearly identified in the footnotes of the corresponding tables.

CIHI collects data on a schedule designed to accommodate the production related activities necessary to deliver updated HPDB data every two years. CIHI collection timelines, in many cases do not necessarily align with data provider's year-end data processing and the resultant under-coverage probably has the greatest impact on the most recent year of data collected. For example, CIHI may request 2001 and 2002 data in order to update HPDB data. At the time of collection, sometime in 2002 or 2003, the 2001 data will most likely reflect all registrations during that year. The 2002 data requested, depending on the registration period, may not reflect the total number of registrations for that reference period because more registration may occur after data has already been submitted to CIHI. Data collected by CIHI for a particular profession may reflect data after the first few months of the 12-month registration period; this is an unavoidable necessity if timely data are to be made available. The level of under-coverage is unknown for HPDB data. While not directly comparable, the Registered Nurses Database (RNDB) at CIHI collects data after the first six months of the 12-month registration period from all registered nursing regulatory authorities across Canada. The resulting under-coverage for RNDB has been documented as typically 1–5%[18] less than provincial/territorial figures.

Over-Coverage

Over-coverage is the inclusion of data beyond the target population.

Given the variety of data sources and the differences in the level of detail available from these sources, and the fact that much of this information was collected initially for specific administrative rather than statistical purposes, caution must be used in applying the data to particular analyses. For example, in an analysis of employment levels, use of data based on registration levels may overstate current active employment numbers when membership with a regulatory authority is required for employment. Those professionals temporarily out of the work force, or out of the province or country, may maintain their registration to maintain continuity. Some of the regulatory authority collect "active" employment information, but not all do.

[18] *Workforce Trends of Registered Nurses in Canada, 2002* (2003). Canadian Institute for Health Information. http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=AR_20_E .

At the national level, only nursing and physician information systems in Canada have methodologies in place to control double counting of the same individual within the same profession. The Southam Medical Database (SMDB) maintains a unique subscriber number for each physician. While not an element on the SMDB system, starting in the year 2000, all physicians in Canada (as well as residents and students in most provinces) have a new national unique lifetime identification number assigned to them. Called the MINC number (Medical Identification Number for Canada), this identifier was developed though the collaborative efforts of the Federation of Medical Licensing Authorities of Canada and the Medical Council of Canada (please visit www.fmlac.com for more information). The Regulated Nursing Databases at CIHI have methodologies in place to control for duplication at the national level. The inability to identify providers consistently and uniquely, at a national level, is a barrier to integration of information across jurisdictions. National yearly totals, for the same health personnel group, may double count individuals registered in more than one province/territory or more than one profession. This effect is compounded when health personnel from separate professions are added together. The impact of this double counting on over-coverage is unknown.

Collection and Capture

Lack of data collection standards for health personnel groups, outside of physicians and nurses, is confounded further by the fact that provincial/territorial regulatory authorities and voluntary professional organizations collect data for administrative purposes, and not for purposes of health human resource management. The level of accuracy and completeness necessary to meet the financial and administrative needs of a registry or membership list may be less stringent than the requirements of health human resources management (i.e. monitoring, evaluation, planning and research).

As a secondary data collector, CIHI is dependent to a large degree on the data quality at source. Since data providers do not submit individual record level data, rigorous edit checks and advanced verification and validation routines cannot be applied by CIHI. The extent to which these processes are in place for each data provider, in every profession, is unknown at this time.

When information is self-reported, as is the case with all HPDB data, reliability can be an issue. The intended purpose and use of data collected in HPDB is communicated to all data providers and data received is considered reliable.

Data entry also impacts the accuracy of the data, as information may not be classified or coded properly. It is possible that data providers may not appropriately categorize data (e.g. voluntary membership, registered, active registered or active registered employed) and this may lead to inaccurate reporting of the information. Although quality checks are utilized, the manual entering of data by CIHI staff could also introduce errors. Data providers were asked to verify data provided in previous years and CIHI staff reviewed all data carefully, however, a more rigorous audit of data entry accuracy was not completed; consequently, data entry accuracy is unknown.

Comparability

Comparability measures how well the current year data compare to data from previous years, and how data from the HPDB compare to health personnel data found in other sources.

Data Collection Standards

For most health personnel groups, outside of physicians and nursing, national standards for data collection do not exist. For the 2002–2003 collection cycle, CIHI requested that data providers submit data based on standardized definitions of levels of registration status. The specific classifications are outlined in the Concepts and Variables section of this publication as well as Appendix A. While this collection strategy improves comparability, by allowing CIHI to better inform users as to the content of data provided, it is important to note that this approach is not equivalent to the submission of data based on standardized specifications, as is the case for the regulated nursing professions.

Before making comparisons between health personnel groups, it is important to review the title of the table or figure, and to carefully read the footnotes. These provide information regarding the group or sub-group of health personnel that is captured in the table. For instance, a table including data for all registered members of a health personnel group (e.g. active, inactive, retired and honorary) will not be directly comparable to a table that includes only data on active registered members. Within the personnel-specific sections of this publication, CIHI has endeavored to clearly indicate when registration with a regulatory authority may not be a mandatory condition of employment or where data estimation may limit comparability. Cells (and summarized data based on these cells) that include voluntary membership data or estimates are *italicized* in all data tables. Caution must be exercised when comparing inter-temporal change at both the provincial/territorial and national levels when tables contain data collected under different regulatory environments.

Data Reference Period

Registration periods vary between different health personnel regulatory authorities, across different jurisdictions, and within the same health profession. Based on previous collection activities it was apparent that the majority of data providers could not provide data as of December 31st of each year. As a result, the Phase I Questionnaire focuses on having data providers identify the actual point in time that the data reflect, rather than assuming what was submitted reflected the requested time frame. As a result reference periods of the available data are not always uniform and this may influence the comparability of data. The impact of this limitation on the interpretation of the data is unknown.

Historical Data

For the 2002–2003 collection cycle, CIHI requested that data providers verify data from 1991 to 2002 based on the definitions provided in the Phase I Questionnaire (Appendix A). Data prior to 1991 has not undergone this evaluation and in some cases, may not be comparable with data collected during the current cycle.

Comparability with Other Sources

The HPDB data used in CIHI publications, media releases, ad hoc requests and special studies will vary from data released by other provincial/territorial sources of health personnel data, as a result of differences in:

- The collection period used. The data released by provincial/territorial regulatory authorities may reflect year-end statistics, rather than data reported by CIHI that reflects some portion of registrations received during a 12-month registration period.
- Editing and processing activities. CIHI does not receive individual record level data and opportunities for editing and "cleaning" of data are limited. Individual data providers have no such restrictions, and editing activities that occur post-submission of data to CIHI may influence data reported by these organizations.
- Differences in definitions. CIHI reports data at the lowest common (across all provinces/territories) available classification. For example, while CIHI is only able to report total registered for a particular health profession, individual data providers may release more discrete levels of data, such as active registered employed personnel. In addition, CIHI's classification of personnel based on a registration status may not be relevant to some data providers.

Additional data quality questions related to the Health Personnel Database (HPDB) can be directed to Consultant, Health Personnel Database at hpdb@cihi.ca.

HPDB Publications and Products

In an effort to reduce the cost to users, the publication *Health Personnel Trends in Canada, 1993–2002* was produced as an electronic document only (paper copies are not available). Additional PDF copies of this publication are available from the CIHI website at www.cihi.ca.

Request Services

CIHI completes ad hoc requests and special analytical projects on a cost-recovery basis using data from the HPDB. Ad hoc requests are short queries that do not require major resources. Special analytical projects require project planning and the commitment of extra resources.

For an estimate of the costs associated with these products and services, please contact:

Consultant, Health Personnel Database
Canadian Institute for Health Information
200-377 Dalhousie Street
Ottawa, Ontario K1N 9N8
Tel: (613) 241-7860
Fax: (613) 241-8120
E-mail: hpdb@cihi.ca
Web: www.cihi.ca

Appendices

Appendix A—Phase I Questionnaire

CIHI Data Request Tables (1991–2002)

Name of Organization _____

Please respond to the questions in Part A.

****If the definitions of the terms (listed in the footnotes below) in anyway limit or prohibit you from supplying data, or if you have any questions, please contact hpdb@cihi.ca****

PART A

SURVEY	
Questions	**Answer:**
1. Is your profession regulated[1] in your province/territory? (Answer YES or NO)	1. _____
2. If your profession is regulated, indicate the year in which it became mandatory in your province/territory to be registered with the regulatory authority or association as a condition of employment.	2. _____
3. What is the start and end date of your registration period? (i.e. April 1–March 31)	3. _____
4. Is your organization able to provide gender breakdown for data on Active Registered[4] members? (Answer YES or NO or NOT APPLICABLE)	4. _____
4.1. If your answer is "yes" to question #4, please indicate from which year gender breakdown is available.	4.1 _____
5. Is your organization able to provide gender breakdown for data on Employed Active Registered[5] members? (Answer YES or NO or NOT APPLICABLE)	5. _____
5.1 If your answer is "yes" to question #5, please indicate from which year gender breakdown is available.	5.1 _____

Please complete the table in Part B according to the following:
- If your profession is currently **not regulated** in your province/territory, respond to **question i) only** in the table below; also indicate date of count (see footnote 2).
- If your profession **is currently regulated** , please respond to **questions i) to iii)** in the table below; also indicate date of count (see footnote 2). Where requested data precedes the year in which your profession became regulated, respond to question i) only. For example, if your profession became regulated in 2000, then respond to question i) to iii) for the years 2000 to 2002; and respond to question i) only for the years 1991 to 1999.
- Use "**NA**" to indicate information that is **not available** .

Appendix A—Phase I Questionnaire (cont'd)

CIHI Data Request Tables (1991–2002)

Data provided in Part B were derived from previous iterations of the publication, *Health Personnel in Canada* (copies of the published data tables are available upon request).

****If the definitions of the terms (listed in the footnotes below) in anyway limit or prohibit you from supplying data, or if you have any questions, please contact hpdb@cihi.ca****

PART B

DATA TABLE						
CIHI REPORTING YEAR	1991	1992	1993	1994	1995	1996
DATE OF COUNT [2] (please indicate)	<mmm dd,yyyy>	<mmm dd,yyyy>	<mmm dd,yyyy>	<mmm dd,yyyy>	<mmm dd,yyyy>	<mmm dd,yyyy>
i) TOTAL number of REGISTERED members[3]						
ii) TOTAL number of ACTIVE REGISTERED members[4]						
iii) TOTAL number of EMPLOYED ACTIVE REGISTERED members[5]						
CIHI REPORTING YEAR	1997	1998	1999	2000	2001	2002
DATE OF COUNT [2] (please indicate)	<mmm dd,yyyy>	<mmm dd,yyyy>	<mmm dd,yyyy>	<mmm dd,yyyy>	<mmm dd,yyyy>	<mmm dd,yyyy>
i) TOTAL number of REGISTERED members[3]						
ii) TOTAL number of ACTIVE REGISTERED members[4]						
iii) TOTAL number of EMPLOYED ACTIVE REGISTERED members[5]						

Notes

1. A regulated health profession is one that is covered by provincial/territorial and/or federal legislation and governed by a professional organization or regulatory body. The regulatory body governing the profession has the authority to set entry requirements and license qualified applicants. Employment in a regulated health profession uses a regulated title and requires licensure/registration with the regulatory body. A non-regulated health profession is one for which there is no legal requirement or restriction on practice with regard to licensure/registration (i.e. registration with a provincial/territorial professional organization is voluntary and not a condition of employment).
2. DATE OF COUNT: Please indicate as of what month, day (if possible), and year the counts were current for the indicated year. Ideally, counts are provided as of the same date from year to year. However, circumstances may not allow for counts to be taken on the same date from year to year. For example:

CIHI Reporting Year	Date of Count
1998	Feb 28, 1999
1999	Dec 31, 1999
2000	Nov 30, 2000
2001	Nov 30, 2001

3. TOTAL number of REGISTERED members: All individuals who are registered with your organization. The count may include individuals in all registration categories (i.e. active, inactive, honorary, etc.).
4. TOTAL number of ACTIVE REGISTERED members: All registered/licensed individuals that are legally able to work under the title of the specified health profession. Individuals may or may not be currently employed in the profession.
5. Number of EMPLOYED ACTIVE REGISTERED members: Personnel that are registered/licensed with your organization, and currently working in the specified health profession.

Source and footnotes for data supplied from previous iterations of the publication, *Health Personnel in Canada*

Appendix B—Phase II Questionnaire

Part A—Professional Description

The professional description is intended to provide general information regarding the health profession and will not include all specific activities undertaken by that profession.

Please review the modified NOC description below.

Example: Dental Hygienist

National Occupation Classification Description
Dental hygienists provide preventive dental services and instruct patients on how to care for their teeth and mouth. Dental hygienists work under the direction of a dentist to clean teeth, polish fillings, take X-rays and do other restorative and orthodontic procedures. General duties of a dental hygienist include: conducting an initial dental assessment and consulting with dentists on patient care; providing dental hygiene treatment and information related to the prevention of diseases and disorders of the teeth and mouth; taking dental impressions and x-rays; and removing stains and deposits from teeth to prevent tooth and root decay. Within their five primary areas of responsibility (clinical therapy, health promotion, education, administration and research) dental hygienists are employed in dentists' offices, hospitals and community health settings, clinics, educational institutions, government agencies and private industry.

Do you agree that this NOC description reflects your profession accurately? (Indicate response)

- ❑ Yes (If yes, please proceed to page B–3)
- ❑ No, I would prefer to provide the definition (please proceed to page B–2)

If you indicated "No", in the space below please provide the professional description for _____ using the guidelines. Note that some print space restrictions exist and occupational descriptions should not exceed half a page (8 1/2 x 11; 11 font).

Guidelines

1. Each description should begin with a single sentence answering the question: What is a _____? (With respect to the Canadian health care system)

2. The next paragraph should be designed to give readers a sense of the range of activities or responsibilities a _____ may have in their occupation.

3. The final paragraph should describe the setting in which _____ may practice.

Professional Description

In addition to the description we ask that you complete the following information for your profession.

1. What is the duration of education and training required after high school for entry into the _____ profession? Please indicate any differences you may be aware of between the provinces.

Education and/or Training Required* to Practice in Canada (Example: Undergraduate degree)	Number of Years (Example: 3 years)

2. Is there a change in entry to practice requirements anticipated within the next year?

3. What are the areas of certified specialization?

The following series of questions are designed to further understanding how _____ services are accessed in the Canadian health care system.

4. Do clients typically require a referral from another health care professional in order to access the services offered by your profession?

5. If a referral is required, what is the primary referring profession?

6. If referral by another health care professional is not the typical manor in which _____ services are accessed by the health care system, please describe (briefly) the primary drivers _____ resources.

* Entry to Practice Requirements should describe the academic and/or experiential criteria, which are necessary for an individual to be eligible to practice the profession in Canada.

Part B—Research Activities

In the space provided please list key Health Human Resources research documents related to _____ that you would recommend Health Human Resource planners to review. Up to ten (10) references will be considered for inclusion in the publication. Preference will be given to reports that are cross-jurisdictional in nature. There will be no priority given to the order in which listed.

Include: Full Title/Author/Publish Year/Location (URL or e-mail address is available)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Please list key research activities currently underway relating to Health Human Resources.

- Title of research project, survey, study or report.
- Contact information (name or organization, study group, author/URL (Web site), e-mail address (preferred), name and phone number.

1. _____
2. _____
3. _____
4. _____
5. _____

Thank You

Appendix C

Statistics Canada Population Estimates for Canada, Provinces and Territories, 1993–2002

	1993 (ID)	1994 (ID)	1995 (ID)	1996 (PD)	1997 (PD)
N.L.	577,410	571,022	564,307	557,440	550,067
P.E.I.	132,966	134,386	135,532	136,533	136,863
N.S.	925,517	927,057	929,645	933,323	935,728
N.B.	750,257	751,633	752,332	753,521	754,215
Que.	7,190,322	7,224,938	7,259,019	7,289,628	7,313,097
Ont.	10,750,785	10,889,510	11,028,964	11,163,797	11,311,878
Man.	1,120,095	1,125,809	1,130,787	1,135,172	1,136,110
Sask.	1,007,686	1,011,913	1,016,291	1,020,600	1,023,305
Alta.	2,687,448	2,720,980	2,759,460	2,805,417	2,866,355
B.C.	3,628,866	3,737,570	3,834,659	3,923,564	3,985,042
Yukon	29,996	30,294	31,487	32,124	31,917
N.W.T.	40,364	41,211	41,591	41,652	41,430
Nun.	24,071	24,775	25,371	25,798	26,137
Canada	28,865,783	29,191,098	29,509,445	29,818,569	30,112,150

	1998 (PD)	1999 (PR)	2000 (PR)	2001 (PR)	2002 (PP)
N.L.	543,010	540,483	536,344	533,305	531,475
P.E.I.	137,278	138,110	138,434	139,330	140,336
N.S.	937,437	942,906	943,025	943,756	945,241
N.B.	753,453	756,185	755,360	755,391	756,633
Que.	7,337,188	7,365,757	7,395,952	7,435,504	7,464,182
Ont.	11,438,657	11,594,269	11,777,260	11,964,104	12,108,864
Man.	1,139,087	1,143,898	1,146,975	1,148,181	1,150,254
Sask.	1,026,163	1,023,872	1,019,466	1,014,403	1,010,007
Alta.	2,932,879	2,979,779	3,032,355	3,086,034	3,127,582
B.C.	4,010,881	4,045,142	4,077,047	4,120,891	4,151,041
Yukon	31,061	30,699	30,243	30,102	29,789
N.W.T.	40,925	40,975	41,018	41,186	41,423
Nun.	26,616	27,168	27,796	28,300	28,796
Canada	30,354,641	30,629,243	30,921,275	31,240,487	31,485,623

Source: Statistics Canada

Notes

Population figures from 1998 to 2001 are as of December 31 of the given year. In Statistics Canada publications this equates to the January figure of the following year. Population figures for 2002 are as of October 2002.

Source: Statistics Canada, Demography Division, Population Estimates Section. Catalogue no. 91-002, Vol. 16, no. 3, January 2003

(ID) Final intercensal estimates, adjusted for net undercoverage.

(PD) Final postcensal estimates.

(PR) Updated postcensal estimates.

(PP) Preliminary postcensal estimates.

Appendix D

Comparison of Health Professionals from Selected Data Sources, Canada, Selected Years

	1991	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Chiropractors											
(CC) HPDB—Registered[8]	3,788	3,917	4,155	4,350	4,485	4,737	5,050	5,342	5,633	6,077	6,418
(CC) Labour Force Survey (LFS)	2,900	4,600	4,300	4,000	4,200	3,600	4,900	2,300	4,000	4,200	5,100
CV for LFS Estimate	ng	ng	ng	ng	18.8	22.1	17.7	20.8	19.9	18.4	18.4
Census											
In the Labour Force	3,440				3,630					5,230	
In the Labour Force in Canada	3,435				3,620					5,190	
(CC) In the Labour Force in Canada, Employed	3,400				3,515					5,015	
Dental Hygienists											
(CC) HPDB—Registered[8]	9,578	10,990	11,555	12,133	12,662	13,293	14,213	14,525	14,895	15,553	16,128
(CC) Labour Force Survey (LFS)	8,000	11,000	10,900	11,100	11,300	11,800	11,100	12,500	12,400	13,400	16,500
CV for LFS Estimate	ng	ng	ng	ng	11.5	11.1	12.1	10.5	11.4	11.2	10.6
Census											
In the Labour Force	9,560				11,315					14,250	
In the Labour Force in Canada	9,515				11,270					14,210	
(CC) In the Labour Force in Canada, Employed	9,145				10,925					13,775	
Dentists											
(CC) HPDB—Active Registered[8]	14,512	..	..	15,589	15,807	16,231	16,490	16,908	17,314	17,691	17,961
(CC) Labour Force Survey (LFS)	13,600	14,100	16,500	17,100	15,200	16,800	16,200	16,200	17,000	14,500	14,400
CV for LFS Estimate	ng	ng	ng	ng	10.9	10.4	10.2	10.3	11.0	11.6	10.5
Census											
In the Labour Force	13,245				15,770					18,105	
In the Labour Force in Canada	13,165				15,660					17,955	
(CC) In the Labour Force in Canada, Employed	12,985				15,500					17,730	
Dietitians											
(CC) HPDB—Complex[8]	6,276	5,675	6,129	6,261	6,397	6,517	6,739	6,771	6,858	6,975	7,292
(CC) Labour Force Survey (LFS)	8,000	7,400	7,700	10,000	6,000	7,500	5,800	5,000	6,800	6,300	7,900
CV for LFS Estimate	ng	ng	ng	ng	15.3	12.7	12.5	15.3	16.1	13.6	15.7
Census											
In the Labour Force	4,705				6,765					8,705	
In the Labour Force in Canada	4,685				6,750					8,670	
(CC) In the Labour Force in Canada, Employed	4,405				6,430					8,345	
Health Record Professionals (Admin. and Tech.)											
HPDB—Voluntary Membership[8]	3,326	3,483	3,475	3,303	3,143	2,965	2,835	2,591	2,522	2,412	2,406
Labour Force Survey (LFS)[3]	..	..	..	..	..	..	..	..	..	..	..
CV for LFS Estimate	..	..	..	..	..	..	..	..	..	..	..
Census[3]											
In the Labour Force	..				..					..	
In the Labour Force in Canada	..				..					..	
In the Labour Force in Canada, Employed	..				..					..	
Health Service Executives											
HPDB—Voluntary Membership[8]	3,018	2,868	2,981	2,926	2,736	2,542	2,527	2,478	2,409	2,375	2,308
Labour Force Survey (LFS)[4]	..	..	..	..	..	..	..	..	..	..	..
CV for LFS Estimate	..	..	..	..	..	..	..	..	..	..	..
Census[4]											
In the Labour Force	..	..	..	..	..	..	..	..	..	..	..
In the Labour Force in Canada	..	..	..	..	..	..	..	..	..	..	..
In the Labour Force in Canada, Employed	..	..	..	..	..	..	..	..	..	..	..

(table continued on next page; see Notes at end)

Comparison of Health Professionals from Selected Data Sources, Canada, Selected Years (cont'd)

	1991	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Licensed Practical Nurses											
HPDB[7]											
(CC) Registered LPN	83,855	82,598	82,453	81,017	78,639	76,830	73,751	72,983	72,905	73,306	
Active Registered Employed LPN											60,123
(CC) Labour Force Survey (LFS)	81,100	74,800	71,800	62,600	86,800	67,800	64,300	55,700	56,700	55,000	49,900
CV for LFS Estimate	ng	ng	ng	ng	3.8	4.3	4.6	4.7	4.5	4.7	5.0
Census											
In the Labour Force	53,380				39,895					47,165	
In the Labour Force in Canada	53,300				39,820					47,110	
(CC) In the Labour Force in Canada, Employed	50,130				38,315					45,510	
Medical Laboratory Technologists											
(CC) HPDB—Complex[8]	19,509	19,659	19,877	19,190	18,847	17,945	17,534	17,468	17,789	17,935	18,519
(CC) Labour Force Survey (LFS)	13,900	14,300	14,400	13,700	13,500	19,100	14,200	15,600	16,600	17,300	15,400
CV for LFS Estimate	ng	ng	ng	ng	10.1	9.0	9.8	9.9	10.4	9.7	9.8
Census											
In the Labour Force	19,925				18,225					18,475	
In the Labour Force in Canada	19,775				18,045					18,325	
(CC) In the Labour Force in Canada, Employed	18,930				17,355					17,865	
Medical Physicists											
HPDB—Voluntary Membership	..	156	185	201	214	229	253	253	254	277	267
Labour Force Survey (LFS)[5]	..	..	..	..	..	..	..	..	..	..	..
CV for LFS Estimate	..	..	..	..	..	..	..	..	..	..	..
Census[5]											
In the Labour Force	..	..	..	..	..	..	..	..	..	..	..
In the Labour Force in Canada	..	..	..	..	..	..	..	..	..	..	..
In the Labour Force in Canada, Employed	..	..	..	..	..	..	..	..	..	..	..
Medical Radiation Technologists											
(CC) HPDB—Complex[8]	14,112	14,231	14,329	14,414	14,208	14,076	14,164	14,189	14,417	14,593	14,780
(CC) Labour Force Survey (LFS)	11,400	13,800	14,200	10,700	12,200	14,500	14,600	15,300	14,100	15,500	14,000
CV for LFS Estimate	ng	ng	ng	ng	11.4	11.8	10.2	9.8	9.8	9.7	10.8
Census											
In the Labour Force	14,550				13,400					14,275	
In the Labour Force in Canada	14,505				13,355					14,240	
(CC) In the Labour Force in Canada, Employed	13,920				12,995					13,915	
Midwives											
(CC) HPDB—Complex[8]	38	96	130	146	165	207	265	310	356	370	413
(CC) Labour Force Survey (LFS)	..	..	0	2,100	3,000	2,000	2,200	3,600	4,700	3,900	6,500
CV for LFS Estimate	..	..	ng	ng	25.3	28.7	23.2	18.5	18.2	16.8	17.0
Census											
In the Labour Force	3,445				3,155					5,175	
In the Labour Force in Canada	3,390				3,120					5,140	
(CC) In the Labour Force in Canada, Employed	3,135				2,895					4,705	
Occupational Therapists											
(CC) HPDB—Complex[8]	5,369	6,702	6,522	7,023	7,235	7,545	7,882	8,353	8,948	9,434	9,783
(CC) Labour Force Survey (LFS)	5,700	4,400	6,100	5,000	6,100	8,200	11,200	6,900	7,400	9,600	8,500
CV for LFS Estimate	ng	ng	ng	ng	16.6	13.7	12.1	15.5	13.9	13.2	13.3
Census											
In the Labour Force	5,825				6,535					9,585	
In the Labour Force in Canada	5,805				6,475					9,560	
(CC) In the Labour Force in Canada, Employed	5,450				6,225					9,210	

(table continued on next page; see Notes at end)

Comparison of Health Professionals from Selected Data Sources, Canada, Selected Years (cont'd)

	1991	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Optometrists											
(CC) HPDB—Active Registered[8]	2,744	2,779	2,835	2,901	3,044	3,079	3,267	3,388	3,433	3,493	3,587
(CC) Labour Force Survey (LFS)	4,800	2,900	2,600	3,200	2,900	4,300	4,500	3,200	4,500	4,300	2,700
CV for LFS Estimate	ng	ng	ng	ng	22.9	20.1	20.0	20.3	22.3	24.5	19.3
Census											
In the Labour Force	3,075				3,395					3,725	
In the Labour Force in Canada	3,060				3,385					3,700	
(CC) In the Labour Force in Canada, Employed	2,995				3,355					3,635	
Pharmacists											
(CC) HPDB—Active Registered[8]	19,810	20,901	21,380	22,197	22,767	22,799	23,164	23,985	24,518	25,643	26,346
(CC) Labour Force Survey (LFS)	16,200	18,500	19,700	23,100	23,500	20,500	19,500	18,700	19,700	22,800	26,500
CV for LFS Estimate	ng	ng	ng	ng	8.7	8.9	10.0	8.8	9.4	9.4	8.1
Census											
In the Labour Force	17,625				20,625					23,895	
In the Labour Force in Canada	17,580				20,465					23,665	
(CC) In the Labour Force in Canada, Employed	17,030				20,030					23,180	
Physicians											
Specialist Physicians											
HPDB[1, 8]											
Including Residents	29,451	30,745	31,547	31,699	32,033	32,248	32,824	33,308	33,818	34,111	34,477
Excluding Residents	24,858	25,733	26,276	26,352	26,719	27,115	27,644	28,130	28,690	28,919	29,154
Labour Force Survey (LFS)	22,000	24,000	27,500	26,700	25,300	24,400	25,800	28,000	24,000	24,700	27,400
CV for LFS Estimate	ng	ng	ng	ng	8.8	8.7	7.5	7.9	8.0	8.4	8.4
Census											
In the Labour Force	18,315				21,625					24,090	
In the Labour Force in Canada	18,145				21,385					23,805	
In the Labour Force in Canada, Employed	17,895				21,115					23,510	
Family Medicine Physicians											
HPDB[1, 8]											
Including Residents	29,938	31,012	30,228	30,181	29,805	29,700	30,113	30,343	30,636	31,115	31,806
Excluding Residents	27,868	29,302	28,668	28,588	28,199	28,092	28,519	28,784	29,113	29,627	30,258
Labour Force Survey (LFS)	31,200	38,800	36,300	31,100	34,800	24,100	34,700	41,800	39,400	35,400	39,500
CV for LFS Estimate	ng	ng	ng	ng	7.1	7.0	7.6	7.0	6.7	7.2	7.6
Census											
In the Labour Force	37,280				37,720					41,435	
In the Labour Force in Canada	36,990				37,370					40,965	
In the Labour Force in Canada, Employed	36,360				37,015					40,485	
Total—All Physicians											
HPDB[1, 8]											
(CC) Including Residents	59,389	61,757	61,775	61,880	61,838	61,948	62,937	63,651	64,454	65,226	66,289
Excluding Residents	52,726	55,035	54,944	54,940	54,918	55,207	56,163	56,914	57,803	58,546	59,412
(CC) Labour Force Survey (LFS)	53,200	62,800	63,800	57,800	60,100	48,500	60,500	69,800	63,400	60,100	66,900
CV for LFS Estimate	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng
Census											
In the Labour Force	55,595				59,345					65,525	
In the Labour Force in Canada	55,135				58,755					64,770	
(CC) In the Labour Force in Canada, Employed	54,255				58,130					63,995	
Physiotherapists											
(CC) HPDB—Active Registered[8]	10,827	12,017	12,402	12,551	12,697	13,107	13,574	13,906	14,462	14,471	15,008
(CC) Labour Force Survey (LFS)	11,200	15,000	15,900	17,300	15,000	19,300	15,300	15,100	16,300	16,300	17,200
CV for LFS Estimate	ng	ng	ng	ng	9.5	9.3	9.3	11.3	9.8	10.0	9.5
Census											
In the Labour Force	11,025				12,925					15,760	
In the Labour Force in Canada	10,975				12,865					15,690	
(CC) In the Labour Force in Canada, Employed	10,510				12,560					15,365	

(table continued on next page; see Notes at end)

Comparison of Health Professionals from Selected Data Sources, Canada, Selected Years (cont'd)

	1991	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Psychologists											
(CC) HPDB—Active-Registered[8]	9,276	9,917	10,699	11,043	11,236	11,476	11,884	12,221	12,684	12,936	13,583
(CC) Labour Force Survey (LFS)	10,700	11,600	12,600	12,100	10,800	13,600	12,300	14,900	13,300	15,700	13,700
CV for LFS Estimate	ng	ng	ng	ng	12.7	12.8	11.9	12.0	12.9	9.9	10.2
Census											
In the Labour Force	10,155				14,000					16,050	
In the Labour Force in Canada	10,135				13,910					15,960	
(CC) In the Labour Force in Canada, Employed	9,805				13,570					15,610	
Registered Nurses											
HPDB[8]											
(CC) Active-Registered, Employed in RN	ng[10]	235,738	234,502	232,249	228,570	228,713	227,814	228,534	232,566	231,512	230,957
(CC) Labour Force Survey (LFS)[6]	233,700	233,500	237,200	241,500	201,900	225,600	231,900	229,200	231,800	236,700	265,400
CV for LFS Estimate	ng	ng	ng	ng	10.9/2.9	10.0/2.6	11.3/2.6	11.3/2.6	10.6/2.6	9.8/2.7	9.5/2.5
Census[6]											
In the Labour Force	249,365				246,805					241,920	
In the Labour Force in Canada	248,130				244,525					239,540	
(CC) In the Labour Force in Canada, Employed	237,605				236,335					233,465	
Registered Psychiatric Nurses											
HPDB											
(CC) Registered	5,826	5,903	5,853	5,861	5,646	5,582	5,522	5,450	5,416	5,416	
Active-Registered, Employed in RPN	..	..	..	..	..	..	..	..	..	..	5,132
(CC) Labour Force Survey (LFS)[6]	..	..	..	..	..	..	..	..	..	..	..
CV for LFS Estimate	..	..	..	..	..	..	..	..	..	..	..
Census[6]											
In the Labour Force	..	..	..	..	..	..	..	..	..	..	..
In the Labour Force in Canada	..	..	..	..	..	..	..	..	..	..	..
(CC) In the Labour Force in Canada, Employed	..	..	..	..	..	..	..	..	..	..	..
Respiratory Therapists											
(CC) HPDB—Complex[8, 9]	4,430	4,877	5,428	5,471	5,670	5,588	6,356	6,258	6,366	6,484	6,572
(CC) Labour Force Survey (LFS)	6,000	6,700	4,200	6,100	5,100	6,600	6,900	5,600	5,700	4,600	6,200
CV for LFS Estimate	ng	ng	ng	ng	17.6	14.9	15.0	15.1	16.9	17.6	15.3
Census											
In the Labour Force	4,530				5,335					6,500	
In the Labour Force in Canada	4,525				5,290					6,450	
(CC) In the Labour Force in Canada, Employed	4,335				5,170					6,245	
Social Workers											
(CC) HPDB -Complex[8]	12,284	11,928	12,706	13,391	13,736	14,596	15,507	16,409	19,928	22,648	24,192
(CC) Labour Force Survey (LFS)	28,900	27,700	33,100	32,500	30,700	35,300	35,100	44,000	42,500	43,300	48,200
CV for LFS Estimate	ng	ng	ng	ng	6.8	6.3	6.3	6.4	6.0	5.7	5.7
Census											
In the Labour Force	32,045				38,875					46,975	
In the Labour Force in Canada	31,940				38,770					46,795	
(CC) In the Labour Force in Canada, Employed	29,830				36,785					44,805	
Total											
HPDB[6, 8]—HPDB Groups in Publication	ng	516,192	519,371	534,097	529,742	530,005	531,728	535,973	548,127	554,827	548,064
Labour Force Survey (LFS)	509,300	523,100	535,000	529,900	508,300	525,000	530,500	533,600	536,900	543,500	585,000
CV for LFS Estimate	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng
Census											
In the Labour Force	539,005				519,995					561,315	
In the Labour Force in Canada	536,470				516,080					556,970	
In the Labour Force in Canada, Employed	513,360				500,090					542,370	

Source: HPDB/CIHI

(Notes on next page)

Comparison of Health Professionals from Selected Data Sources, Canada, Selected Years (cont'd)

Notes

.. Information not available.
ng Estimate not generated.
CV Coefficient of variation; relate to year-specific Labour Force Survey estimates. CV<16.5 indicates reliable estimate. CV 16.5 - 33.3 indicates estimate may be reliable but should be used with caution. Estimates associated with CVs > 33.3 are unreliable and are not reported. Please see Methodological Notes for details.
CC Refers to "Common Comparable" health personnel group. CC groups reflect health personnel groups for which administrative (HPDB) and survey (both Labour Force Survey and Census) data are available for most years under comparison.

1. Based on SMDB counts of "active" physicians and CAPER resident data. Please see Methodological Notes for details.
2. Coefficients of variation (CV) are provided for the two component groups added together to provide the Labour Force Survey estimate for registered nurses used in this publication. The two groups are SOC category D111—Head Nurses and D112—Registered Nurses. The format in the table is: c.v.D111—Head Nurses /c.v.D112—Registered Nurses.
3. The Standard Occupational Classification (SOC 1991) does not adequately differentiate Health Record Professionals (Admin. & Tech.) and therefore, Labour Force Survey and Census estimates were not generated. The 1991 SOC unit groups A114 Other Administrative Services Managers + B513 Records and File Clerks were determined to be too broadly-based to provide a reasonable comparison to HPDB data.
4. The Standard Occupational Classification (SOC 1991) does not adequately differentiate Health Service Executives and therefore, Labour Force Survey and Census estimates were not generated. The SOC 1991 classification A014 Senior Managers—Health, Education, Social and Community Services and Membership Organizations, was determined to be too broadly based to provide a reasonable comparison to HPDB data.
5. Labour Force Survey and Census estimates for the health personnel group Medical Physicists were not generated. The Standard Occupational Classification (SOC 1991) classification C011 Physicists and Astronomers, was determined to be too broadly based to provide a reasonable comparison to HPDB data.
6. Labour Force Survey (LFS) and Census counts for Registered Nurses include the 1991 SOC codes D111 Head Nurses and Supervisors + D112 Registered Nurses. The 1991 SOC D112 includes Registered Psychiatric Nurses; as a result, LFS and Census estimates for the health personnel group Registered Psychiatric Nurses are not available.
7. Total includes: active registered, employed (2002) and registered (1991;1993–2001) licensed practical nurses; active registered employed (2002) and active registered (1991;1993–2001) registered psychiatric nurses; total physicians, including residents. Total was not generated for 1991 because of missing registered nurses data.
8. Categorization of data (e.g. Registered) identifies general description and users are cautioned that data content varies by year, and may include both registered (membership with a specific data provider is required as a condition of employment), voluntary membership data (mandatory registration with the data provider is not a condition of employment) and estimates; data are useful for some purposes but should be used within the limitations noted (see Methodological Notes as well as notes accompanying personnel-specific sections of the publication). Designation as "Complex" indicates personnel groups where particular attention is required.
9. Data for Prince Edward Island and Nova Scotia are not available in 1991.
10. RNDB publications report 170, 273 registered nurses (RN's) employed in nursing in Canada in 1991 (Quebec did not report Employment Status and imputations were not completed); this data undercounts the number of RNs employed in nursing at the national level in 1991 and is not reported.

Appendix E

Total Number and Percent Increase/Decrease Between 1996 and 2001, Selected Supply Data for Health Personnel in Canada, 1996 and 2001

HPDB Health Personnel Group Format: General Title (Category)	Reference 1991 SOC Format: 1991 SOC Unit Group Code(2001 NOC-S Unit Code) Unit Group Title	Common Comparable Group	Specificity Rating*	HPDB[6]		% (-/+)	Census[7]		% (-/+)	LFS[8]		% (-/+)	Percent Difference between HPDB and.. (-) difference = % Census/LFS source is HIGHER than HPDB data (+) difference = Census/LFS source is LOWER than HPDB data			
				1996	2001	96-01	1996	2001	96-01	1996	2001	96-01	Census[6] 1996	Census[6] 2001	LFS[7] 1996	LFS[7] 2001
Chiropractors	D022 (3122) Chiropractors	✓	Good	4,485	6,077	35.5	3,515	5,015	42.7	4,200	4,200	0.0	21.6	17.5	6.4	30.9
Dental Hygienists	D222 (3222) Dental Hygienists and Dental Therapists	✓	Poor	12,662	15,553	22.8	10,925	13,775	26.1	11,300	13,400	18.6	13.7	11.4	10.8	13.8
Dentists	D013 (3113) Dentists	✓	Good	15,807	17,691	11.9	15,500	17,730	14.4	15,200	14,500	-4.6	1.9	-0.2	3.8	18.0
Dietitians	D032 (3132) Dietitians and Nutritionists	✓	Poor	6,397	6,975	9.0	6,430	8,345	29.8	6,000	6,300	5.0	-0.5	-19.6	6.2	9.7
Health Record Professionals	[1]		..	3,143	2,412	-23.3	..	..	..	..	..	..	..	..	..	..
Health Service Executives	[2]		..	2,736	2,375	-13.2	..	..	..	..	..	..	..	..	..	..
Licensed Practical Nurses	D233 (3233) Registered Nursing Assistants	✓	Fair	78,639	73,306	-6.8	38,315	45,510	18.8	86,800	55,000	-36.6	51.3	37.9	-10.4	25.0
Medical Laboratory Technologists	D211(3211) Medical Laboratory Technologists and Pathologists' Assistants	✓	Poor	18,847	17,935	-4.8	17,355	17,865	2.9	13,500	17,300	28.1	7.9	0.4	28.4	3.5
Medical Physicists	[3]		..	214	277	29.4	..	..	..	..	..	..	..	..	..	..
Medical Radiation Technologists	D215 (3215) Medical Radiation Technologists	✓	Poor	14,208	14,593	2.7	12,995	13,915	7.1	12,200	15,500	27.0	8.5	4.6	14.1	-6.2
Midwives	D232 (3232) Midwives and Practitioners of Natural Healing	✓	Poor	165	370	124.2	2,895	4,705	62.5	3,000	3,900	30.0	-1,654.5	-1,171.6	-1,718.2	-954.1
Occupational Therapists	D043 (3143) Occupational Therapists	✓	Good	7,235	9,434	30.4	6,225	9,210	48.0	6,100	9,600	57.4	14.0	2.4	15.7	-1.8
Optometrists	D021 (3121) Optometrists	✓	Good	3,044	3,493	14.7	3,355	3,635	8.3	2,900	4,300	48.3	-10.2	-4.1	4.7	-23.1
Pharmacists	D031 (3131) Pharmacists	✓	Good	22,767	25,643	12.6	20,030	23,180	15.7	23,500	22,800	-3.0	12.0	9.6	-3.2	11.1
Physicians	D012 (3112) General Practitioners and Family Physicians + D011 (3111) Specialist Physicians	✓	Good	61,838[5]	65226[5]	5.5	58,130	63,995	10.1	60,100	60,100	0.0	6.0	1.9	2.8	7.9
Physiotherapists	D042 (3142) Physiotherapists	✓	Good	12,697	14,471	14.0	12,560	15,365	22.3	15,000	16,300	8.7	1.1	-6.2	-18.1	-12.6
Psychologists	E021 (4151) Psychologists	✓	Good	11,236	12,936	15.1	13,570	15,610	15.0	10,800	15,700	45.4	-20.8	-20.7	3.9	-21.4
Registered Nurses	D111 (3151) Head Nurses and Supervisors + D112 (3152) Registered Nurses	✓	Poor	228,570	231,512	1.3	236,335	233,465	-1.2	201,900	236,700	17.2	-3.4	-0.8	11.7	-2.2
Registered Psychiatric Nurses	[4]	✓	..	5,646	5,416	-4.1	..	..	..	..	..	..	..	..	..	..
Respiratory Therapists	D214 (3214) Respiratory Therapists and Clinical Perfusionists	✓	Poor	5,670	6,484	14.4	5,170	6,245	20.8	5,100	4,600	-9.8	8.8	3.7	10.1	29.1
Social Workers	E022 (4152) Social Workers	✓	Good	13,736	22,648	64.9	36,785	44,805	21.8	30,700	43,300	41.0	-167.8	-97.8	-123.5	-91.2

(table continued on next page)

Appendix E

Total Number and Percent Increase/Decrease Between 1996 and 2001, Selected Supply Data for Health Personnel in Canada, 1996 and 2001 (cont'd)

Notes

.. Information not available

1 It may be possible to use SOC 1991 unit groups A114(0114) Other Administrative Services Managers + B513(1413) Records and File Clerks to estimate of the number of Health Record Professionals in Canada, however, for the purposes of this publication these 1991 SOC unit groups were determined to lack even the minimum established specificity standards (see Specificity Rating* below).

2. It may be possible to use SOC 1991 unit group A014(0014) Senior Managers—Health, Education, Social and Community Services and Membership Organizations to estimate of the number of Health Service Executives in Canada, however, for the purposes of this publication this 1991 SOC unit group was determined to lack even the minimum established specificity standards (see Specificity Rating* below).

3. The occupation Medical Physicists is categorized in the unit group C011 Physicists and Astronomers. For the purposes of this publication this 1991 SOC unit group was determined to lack even the minimum established specificity standards (see Specificity Rating* below).

4. The occupation Registered Psychiatric Nurse is categorized in the unit group D112 Registered Nurses.

5. Based on SMDB counts of 'active' physicians and CAPER resident data. Please see Methodological Notes for details.

6. HPDB data may include voluntary membership data and/or estimates; Users are cautioned to review personnel-specific sections of this publication (data tables and all related notes) as well as Methodological Notes before undertaking any analyses.

7. Census estimates reflect employed in the labour force in Canada for each year.

8. Labour Force Survey estimates reflect employed and unemployed in the labour force for each year.

* Specificity Rating —This indicator suggests how well the 1991 SOC Unit Group compare to HPDB Personnel Groups. This is a crude rating system designed by CIHI staff to judge the relative comparability of the 1991 SOC health occupations unit groups relative to health personnel groups included in HPDB; the rating should not be interpreted beyond this scope.

Good—Indicates 1991 SOC Unit Group Describes only the individual HPDB personnel group and all example titles are related.

Fair—Indicates 1991 SOC Unit Group describes only the individual HPDB personnel group and < 5 example titles seem unrelated.

Poor—Indicates 1991 SOC Unit Group describes more than the HPDB personnel group and >5 example titles are unrelated.

Appendix F

Comparison of Total Health Professionals, Canada, Selected Years

	1991	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
All Health Occupations											
HPDB [1]											
Total—All Health Personnel (21 Groups)	..	516,192	519,371	534,097	529,742	530,005	531,728	535,973	548,127	554,827	548,064
Total—All CC Health Personnel	..	509,685	512,730	527,667	523,649	524,269	526,113	530,651	542,942	549,763	543,083
LFS [2]											
Total—Health Occupations	693,800	721,000	718,500	700,000	716,600	744,200	740,500	765,800	777,900	796,100	847,200
CV for LFS Estimate	ng	ng	ng	ng	1.6	1.5	1.6	1.5	1.5	1.5	1.4
Total—All CC Health Occupations	509,300	523,100	535,000	529,900	508,300	525,000	530,500	533,600	536,900	543,500	585,000
CV for LFS Estimate	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng
Census [2]											
Total—Health Occupations	695,780				726,440					823,415	
Total—All CC Health Occupations	487,865				500,090					542,370	

Source: HPDB/CIHI

Notes

.. Information not available.
ng Estimate not generated.
na Not applicable.
CV Coefficient of variation; relate to year-specific Labour Force Survey estimates. CV<16.5 indicates reliable estimate. CV 16.5–33.3 indicates estimate may be reliable but should be used with caution. Estimates associated with CVs > 33.3 are unreliable and are not reported. Please see Methodological Notes for details.
CC Refers to "Common Comparable" health personnel groups. Common comparable (CC) groups reflect health personnel groups for which administrative (HPDB) and survey (both Labour Force Survey and Census) data are available for most years under comparision.

1. Total was not generated for 1991 because HPDB data for registered nurses and data was not available; As a result, 1991 HPDB total is not comparable with Census and LFS data for the same year. HPDB common comparable data for Licensed Practical Nurses and Registered Psychiatric Nurses reflect Active, Employed in 2002 . HPDB data for Physicians reflect total "active" physicians including interns and residents (see Methodological Notes for the definition of "active" on the Southam Medical Database). HPDB data for Dentists are not available in 1993 or 1994. HPDB data may include voluntary membership data and/or estimates; Users are cautioned to review personnel-specific sections of this publication (data tables and all related notes) as well as Methodological Notes before undertaking any analyses.
2. An estimate for Registered Psychiatric Nurses (RPNs) is not available from either the Labour Force Survey or the Census. However, the Standard Occupational Classification (SOC 1991) classification D112 Registered Nurses does include RPNs. Therefore, for the purposes of examining the total number of health personnel in Canada, the RPN health personnel group is identified as a CC group and included in CC totals. For Census, all CC groups reflect employed in the labour force in Canada in each year. Labour Force Survey estimates reflect employed and unemployed in the labour force for each year. Labour Force Survey and Census counts of all health occupations includes all of D0—Professional Occupations in Health (excluding Veterinarians), D1—Nurse Supervisiors and Registered Nurses, D2—Technical and Related Occupations in Health (excluding Animal Health Technologists), D3—Assisting Occupations in Support of Health Services, E021—Psychologists and E022—Social Workers.

Appendix G

Health Professions by Average Age and Gender, Selected Data Sources, 1991, 1996 and 2001

Format: 1991 SOC Unit Group Code (2001 NOC-S Unit Code) Unit Group Title		Average Age						Ratio Female:Male					
		Census[1]			Labour Force Survey[2]			Census[1]			Labour Force Survey[2]		
		1991	1996	2001	1991	1996	2001	1991	1996	2001	1991	1996	2001
D022(3122)	Chiropractors	40.6	41.2	40.6	41.1	41.8	38.2	16:84	22:79	28:72	X	X	X
D222(3222)	Dental Hygienists and Dental Therapists	32.2	34.1	36.2	31.0	32.9	37.2	96:4	98:2	98:2	X	X	X
D013(3113)	Dentists	42.0	42.8	44.3	43.1	43.0	42.8	15:85	21:79	27:73	12:88[cv?]	22:78[cv?]	40:60[cv?]
D032(3132)	Dietitians and Nutritionists	35.2	38.4	40.5	38.8	37.5	41.0	95:5	94:6	93:7	X	X	X
	Health Record Professionals	..	..	..	..	..	..	..	..	..	..	..	..
	Health Service Executives	..	..	..	..	..	..	..	..	..	..	..	..
D233(3233)	Registered Nursing Assistants	38.8	41.3	43.2	39.5	40.7	42.3	92:8	93:7	92:8	92:8[cv?]	95:5[cv?]	93:7[cv?]
	Medical Physicists	..	..	..	..	..	..	..	..	..	..	..	..
D211(3211)	Medical Laboratory Technologists and Pathologists' Assistants	36.6	39.0	41.4	36.8	39.4	42.6	80:20	80:20	81:19	77:23[cv?]	79:21[cv?]	77:23[cv?]
D215(3215)	Medical Radiation Technologists	36.5	38.6	40.5	33.8	40.3	40.2	80:20	79:21	80:20	83:17[cv?]	84:1[6cv?]	75:25[cv?]
D232(3232)	Midwives and Practitioners of Natural Healing	41.8	43.4	44.4	..	41.4	46.1	59:41	66:34	75:25	X	X	X
D043(3143)	Occupational Therapists	34.5	35.6	36.3	35.2	34.4	37.3	89:11	91:9	90:10	X	X	X
D021(3121)	Optometrists	40.1	41.4	40.6	39.3	42.8	38.3	38:62	42:58	44:56	46:54[cv?]	100:0[cv?]	63:37[cv?]
D031(3131)	Pharmacists	38.7	39.4	40.6	38.4	39.2	40.0	52:48	56:44	57:43	58:42[cv?]	56:44[cv?]	67:33[cv?]
(D012 + D011)	Physicians	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng
D012(3112)	General Practitioners and Family Physicians	42.3	44.2	45.3	42.8	41.2	42.3	27:73	30:70	34:66	32:68	30:70	34:66
D011(3111)	Specialist Physicians	44.3	45.0	45.7	43.7	43.3	44.0	23:77	28:72	31:69	23:77	33:67	34:66
D042(3142)	Physiotherapists	36.3	38.0	39.0	37.8	37.0	37.9	85:15	82:18	79:21	85:15[cv?]	83:17[cv?]	82:18[cv?]
E021(4151)	Psychologists	40.5	42.8	45.3	40.0	40.8	44.4	59:41	62:38	67:33	47:53[cv?]	68:32[cv?]	72:28[cv?]
(D111+ D112)	Registered Nurses	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng
D111(3151)	Head Nurses and Supervisors	42.6	44.7	45.2	43.8	43.4	44.8	93:7	93:7	93:7	X	X	X
D112(3152)	Registered Nurses	38.8	41.2	42.9	38.1	39.9	42.6	95:5	95:5	94:6	95:5	94:6	94:6
	Registered Psychiatric Nurses	..	..	..	..	..	..	..	..	..	..	..	..
D214(3214)	Respiratory Therapists and Clinical Perfusionists	33.0	35.2	36.6	32.9	32.9	34.4	64:36	66:34	65:35	77:33[cv?]	100:0[cv?]	100:0[cv?]
E022(4152)	Social Workers	37.8	39.7	40.9	37.6	39.6	41.4	74:26	76:24	79:21	76:24[cv?]	77:23[cv?]	81:19[cv?]

Source: HPDB/CIHI

Notes

ng Estimate not generated.

.. Information not available.

cv? The coefficient of variation indicates that this Labour Force Survey estimate is potentially useful for some purposes but may be unreliable (Coefficient of variation, relate to year-specific Labour Force Survey estimates; Please see Methodological Notes for details).

X The coefficient of variation indicates that this Labour Force Survey estimate is unreliable (Coefficient of variation, relate to year-specific Labour Force Survey estimates; Please see Methodological Notes for details).

1. Census estimates reflect employed in the labour force in Canada for each year.
2. Labour Force Survey estimates reflect employed and unemployed in the labour force for each year.

Appendix H

1991 Standard Occupational Classification Codes—Category "D"

Statistics Canada has a searchable internet version of the Standard Occupational Classification (SOC) 1991 available at: http://www.statcan.ca/english/Subjects/Standard/soc/1991/soc91-menu.htm .

D0—Professional Occupations in Health

D01—Physicians, Dentists and Veterinarians
- D011—Specialist Physicians
- D012—General Practitioners and Family Physicians
- D013—Dentists
- D014—Veterinarians

D02—Optometrists, Chiropractors and Other Health Diagnosing and Treating Professionals
- D021—Optometrists
- D022—Chiropractors
- D023—Other Professional Occupations in Health Diagnosing and Treating

D03—Pharmacists, Dietitians and Nutritionists
- D031—Pharmacists
- D032—Dietitians and Nutritionists

D04—Therapy and Assessment Professionals
- D041—Audiologists and Speech-Language Pathologists
- D042—Physiotherapists
- D043—Occupational Therapists
- D044—Other Professional Occupations in Therapy and Assessment

D1—Nurse Supervisors and Registered Nurses

D11—Nurse Supervisors and Registered Nurses
- D111—Head Nurses and Supervisors
- D112—Registered Nurses

D2—Technical and Related Occupations in Health

D21—Medical Technologists and Technicians (except Dental Health)

D211—Medical Laboratory Technologists and Pathologists' Assistants
D212—Medical Laboratory Technicians
D213—Animal Health Technologists
D214—Respiratory Therapists and Clinical Perfusionists
D215—Medical Radiation Technologists
D216—Medical Sonographers
D217—Cardiology Technologists
D218—Electroencephalographic and Other Diagnostic Technologists, n.e.c.
D219—Other Medical Technologists and Technicians (except Dental Health)

D22—Technical Occupations in Dental Health Care

D221—Denturists
D222—Dental Hygienists and Dental Therapists
D223—Dental Technicians and Laboratory Bench Workers

D23—Other Technical Occupations in Health Care (except Dental)

D231—Opticians
D232—Midwives and Practitioners of Natural Healing
D233—Registered Nursing Assistants
D234—Ambulance Attendants and Other Paramedical Occupations
D235—Other Technical Occupations in Therapy and Assessment

D3—Assisting Occupations in Support of Health Services

D31—Assisting Occupations in Support of Health Services

D311—Dental Assistants
D312—Nurse Aides and Orderlies
D313—Other Aides and Assistants in Support of Health Services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à l'avant-garde de l'information sur la santé