

# Health care professionals

*Diane Galarneau*

**H**EALTH CARE has long been a concern for Canadians. Since the introduction of health insurance in 1972, numerous commissions have examined health care and proposed ways to improve it. These various reports focused largely on access to health care, its funding (public or private), and its quality. In 2001, Canada ranked fourth among the OECD countries in terms of share of GDP allotted to health—9.7%. Along with the U.S. and Finland, health care costs in Canada increased dramatically in 2000 and 2001 (OECD 2003).

Human resources are also an important concern for the health care system. Whenever nurses and physicians are mentioned, the words ‘shortage’ and ‘waiting list’ leap to mind. In the early 1990s, efforts were made to control the growth in the number of physicians to avoid a surplus. Now, however, more students are being admitted into medical schools and more foreign physicians are being sought in order to avoid a shortage. The aging population poses a double challenge as caseloads increase and health workers in the baby boom generation begin retiring. Because women usually work fewer hours

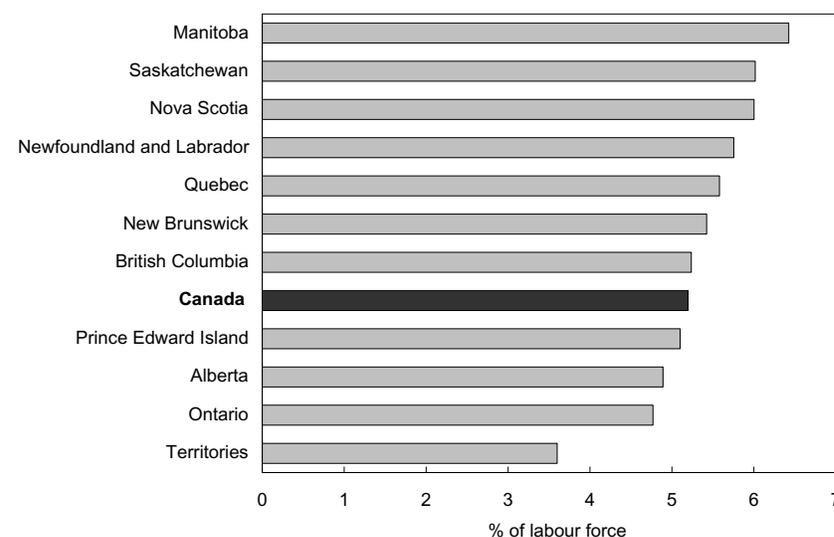
than men, their increased entry into general practice and specialized medicine has intensified the pressures on these occupations (Chan 2002). This, combined with massive retirements in some occupations in the 1990s, has served to reinforce the impression of a labour shortage in health care.

Health workers, especially professionals, have undergone many changes in recent years, from both a demographic and work standpoint. Using census data from 1991 and 2001, these changes are highlighted for all health care workers and then examined in more detail for nurses and doctors.

## The health work force

Health workers can be divided into three major categories: professionals, technical personnel, and support personnel (see *Definitions*). Professionals made up 57% of all workers in health occupations in 2001. The majority of professionals (63%) were nurses, with physicians—general practitioners and specialists—far behind at 14% (Table 1).

**Chart A: Ontario and the Territories have the lowest ratios of health workers.**



Source: Census of Canada, 2001

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## Definitions

**Health worker:** A person with an occupation listed in section D (codes D011-D313) of the 2001 National Occupational Classification.

**Health professionals** are primarily concerned with diagnosing and treating health problems in humans and animals and with providing related services such as pharmacy, nutrition, speech therapy, physiotherapy and occupational therapy. In addition to specialist physicians and general practitioners, dentists, veterinarians, optometrists, chiropractors, pharmacists, dietitians and nutritionists, audiologists and speech-language pathologists, physiotherapists and occupational therapists, this group includes nurses—both registered and licensed practical nurses.

**Technical personnel** are primarily concerned with providing technical services to professionals. Supervisory technologists and technicians are included in this group. It includes medical laboratory technologists and pathologist's assistants, medical laboratory technicians, veterinary and animal health technologists and technicians, medical radiation technologists, medical sonographers, cardiology technologists, electroencephalographic technologists, respiratory therapists, clinical perfusionists, cardio-technologists, denturists, dental hygienists and therapists, dental technologists, technicians and laboratory bench workers, opticians, midwives and practitioners of natural healing, and ambulance and paramedical attendants.

**Support personnel** are primarily concerned with providing technical support to professionals. They include dental assistants, nurses aides, orderlies, and patient service associates.

**Registered nurses** include registered nurses, registered psychiatric nurses, and graduates of a nursing program who are awaiting registration.

**Licensed practical nurses** provide care usually under the direction of medical practitioners, registered nurses, or other health team members. This group includes operating room technicians.

**Specialist physicians** are doctors who specialize in clinical medicine, laboratory medicine or surgery.

**Other professionals:** professional occupations in business and finance; professional occupations in natural and applied sciences; judges, lawyers, psychologists, social workers, ministers of religion, and policy and program officers; and professional occupations in art and culture—categories B0, C0, E0, and F0 in the 2001 National Occupational Classification. In most cases, these occupations require at least a bachelor's degree.

**Full-year, full-time:** The full-year, full-time category was created by combining weeks worked in the census reference year with hours usually worked in the census reference week. Full-time workers usually have a more stable work pattern than the rest of the workforce.

**Mostly part-time:** those who reported working mostly part time during the reference year. This category does not take into account the number of weeks worked in the reference year.

**Unemployment rate:** the unemployed expressed as a percentage of the labour force. However, those who had never been employed or were not employed during the 18 months preceding the census reference week did not indicate an occupation, and hence were excluded.

In 2001, almost 824,600 persons worked in the health field, an increase of 15% since 1991. In comparison, the labour force as a whole increased by 11%, as did the population of Canada. Health workers accounted for 5% of the labour force in 2001 (Chart A).<sup>1</sup> Provincially, Manitoba posted the highest proportion (6.4%) and Ontario the lowest (4.8%). The Territories also had a low proportion (3.6%).

### Characteristics of health workers

Women have always accounted for a large proportion of health workers (Table 1). In 2001, nearly four health workers in five were women (79%) compared with less than one in two in other sectors. They were particularly evident in support occupations requiring few skills (87%).

From 1991 to 2001, the average age of workers in the labour force increased by 1.8 years. In comparison, the increase for health workers was relatively large (2.8 years), especially for professionals (3.3 years).

The increase varied by occupation. In 1991, health professionals were only slightly older than their counterparts in other fields (39.5 compared with 39.1), but by 2001, the gap had widened to two years. Among professionals, registered nurses and licensed practical nurses saw the largest increase—4.1 and 4.4 years respectively. Because nurses make up such a large proportion of professionals, they are mainly responsible for the significant increase in this group's average age. In 2001, specialists had the highest average age (45.7) followed closely by head nurses and supervisors (45.4) and general practitioners (45.2).

**Table 1: Characteristics of health workers**

	1991	2001	Change	Women		Average age	
				1991	2001	1991	2001
	'000		%	%			
<b>Non-health workers</b>	<b>13,639,100</b>	<b>15,045,900</b>	<b>10.3</b>	<b>43.6</b>	<b>45.2</b>	<b>36.9</b>	<b>38.7</b>
<b>Professionals</b>	<b>1,511,300</b>	<b>2,062,400</b>	<b>36.5</b>	<b>45.2</b>	<b>48.1</b>	<b>39.1</b>	<b>40.7</b>
<b>Health workers</b>	<b>719,300</b>	<b>824,600</b>	<b>14.6</b>	<b>79.1</b>	<b>79.3</b>	<b>38.3</b>	<b>41.1</b>
<b>Professionals</b>	<b>430,600</b>	<b>467,600</b>	<b>8.6</b>	<b>79.4</b>	<b>78.2</b>	<b>39.5</b>	<b>42.8</b>
Specialists	18,200	24,400	34.2	23.5	31.5	44.4	45.7
General practitioners	37,200	41,600	11.8	26.8	34.4	42.4	45.2
Dentists	13,300	17,900	35.0	15.3	27.7	42.1	44.1
Veterinarians	4,400	7,100	61.2	32.0	47.8	38.1	41.1
Optometrists	3,100	3,700	18.3	37.7	44.1	40.5	40.8
Chiropractors	3,400	4,900	47.3	16.0	27.8	40.9	40.7
Other diagnosing and treatment	800	2,700	254.1	59.3	59.7	42.6	43.2
Pharmacists	17,800	24,300	36.5	52.0	57.6	39.0	40.5
Dietitians and nutritionists	4,700	8,800	86.8	95.3	93.8	35.1	40.5
Audiologists and speech-language pathologists	3,900	6,100	58.0	92.4	91.8	35.6	38.4
Physiotherapists	11,000	16,000	45.7	84.9	79.5	36.2	39.0
Occupational therapists	5,800	9,700	68.5	89.7	90.3	34.6	36.3
Other therapy and assessment	1,400	4,800	244.6	74.2	81.2	36.4	37.7
Head nurses and supervisors	19,500	10,200	-47.5	93.3	92.6	42.9	45.4
Registered nurses	232,500	237,300	2.1	95.2	94.2	38.9	43.0
Licensed practical nurses	53,700	47,900	-10.9	92.2	92.0	38.8	43.2
<b>Technical personnel</b>	<b>119,300</b>	<b>145,300</b>	<b>21.8</b>	<b>70.4</b>	<b>72.2</b>	<b>35.9</b>	<b>38.6</b>
Medical laboratory technologists and pathologist's assistants	20,000	19,100	-4.6	80.3	80.8	36.5	41.5
Medical laboratory technicians	24,200	19,600	-18.8	81.7	81.8	36.1	39.5
Veterinary and animal health technologists and technicians	3,300	9,200	181.6	74.6	87.3	30.5	31.6
Respiratory therapists, clinical perfusionists, and cardio-pulmonary technologists	4,500	6,500	44.2	65.6	65.4	32.9	36.5
Medical radiation technologists	14,700	14,500	-1.7	79.6	79.9	36.5	40.5
Medical sonographers	1,500	2,600	78.1	85.0	86.1	35.7	39.9
Cardiology technologists	1,700	1,800	7.8	91.3	89.2	39.2	42.6
Electroencephalographic technologists	900	1,600	90.5	65.4	76.6	37.2	41.0
Other technologists	5,900	4,100	-30.5	79.7	59.2	36.7	39.6
Denturists	1,800	2,100	13.8	18.9	21.7	42.4	43.9
Dental hygienists and therapists	9,600	14,500	51.0	95.8	97.7	32.3	36.0
Dental technologists, technicians and laboratory bench workers	5,800	6,000	2.4	39.4	46.1	37.0	41.2
Opticians	3,900	5,900	50.8	55.6	58.3	36.2	39.3
Midwives and practitioners of natural healing	3,300	4,700	41.1	61.0	74.8	41.3	44.1
Ambulance and paramedical attendants	12,200	16,400	33.9	20.5	26.1	34.5	36.8
Other occupations in therapy and assessment	5,900	16,600	180.2	75.2	80.9	36.5	37.1
<b>Support personnel</b>	<b>169,400</b>	<b>211,700</b>	<b>24.9</b>	<b>84.4</b>	<b>86.7</b>	<b>36.8</b>	<b>39.0</b>
Dental assistants	22,200	25,600	15.3	98.0	98.1	30.9	34.4
Nurses aides, orderlies, and patient service associates	118,900	138,500	16.5	82.8	85.6	38.3	40.6
Other support personnel	28,300	47,600	68.2	80.4	83.6	35.1	36.8

Source: Census of Canada



**Table 3: Work intensity and annual income of health workers**

	Total	Non-health	Health	Health professionals	Technical personnel	Support personnel
<b>All workers</b>						
<b>Average hours</b>						
1991	31.1	31.1	31.2	32.5	31.6	27.5
2001	32.8	32.8	32.8	34.2	32.7	29.6
				%		
Change	5.5	5.5	5.1	5.2	3.5	7.6
<b>Average earnings</b>						
				\$		
1990	30,300	29,900	38,400	47,200	33,300	19,700
2000	32,500	32,000	41,900	53,700	33,500	21,400
				%		
Change	7.2	7.0	8.9	13.8	0.6	8.6
<b>Median earnings</b>						
				\$		
1990	25,200	24,400	30,400	36,500	32,100	19,500
2000	26,000	25,200	32,400	42,000	32,000	21,000
				%		
Change	3.3	3.1	6.4	15.1	-0.2	7.9
<b>Full year, full time</b>						
<b>Average hours</b>						
1991	43.1	43.1	41.4	42.3	40.4	39.3
2001	43.9	44.0	41.9	42.7	41.5	40.0
				%		
Change	1.9	2.1	1.2	0.9	2.7	1.8
<b>Average earnings</b>						
				\$		
1990	41,300	40,900	48,700	58,700	40,600	25,800
2000	43,000	42,600	49,800	61,800	39,900	26,600
				%		
Change	4.0	4.1	2.2	5.2	-1.6	3.1
<b>Median earnings</b>						
				\$		
1990	36,500	36,500	38,900	45,000	39,100	25,800
2000	35,800	35,100	40,000	48,800	40,000	26,000
				%		
Change	-1.9	-3.7	2.8	8.4	2.4	0.7

Source: Census of Canada

Health professionals also compared favourably with similar groups outside health. Average employment income during the same period rose 4.9% for other professionals and 13.9% for senior managers. The median dropped 2.5% for the former and rose 0.2% for the latter.

Among those working full year, full time, health workers again came out on top with median earnings increases greater than in the rest of the workforce. This coincided with an increase in their average age and in

hours worked. Technical and support personnel showed a modest increase in median earnings and a larger increase than professionals in hours worked.<sup>4</sup>

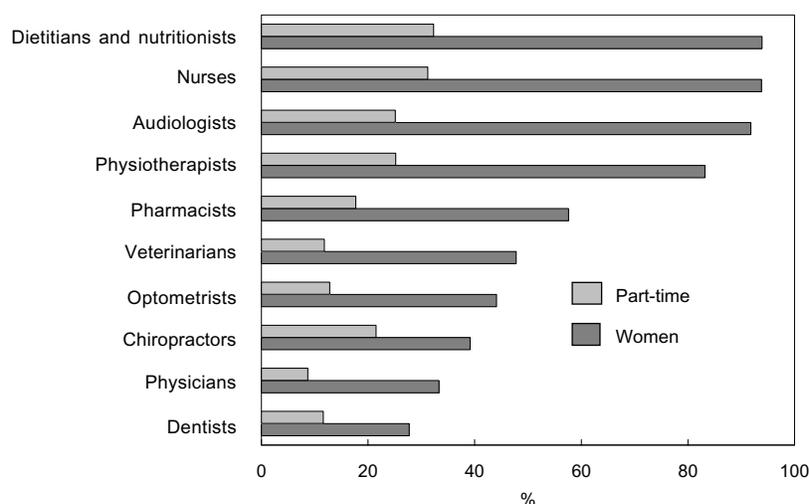
Among professionals, the increase seems to reflect in part their increased work intensity and the rise in their average age. However, these general observations conceal differences that appear when health occupations are examined separately, the two most important in numerical terms being nurses and doctors.

### Nurses

'Nurse' refers to both registered nurses and licensed practical nurses. However, the two are examined separately, even though their duties are similar and both are regulated. Licensed practical nurses often work under the supervision of registered nurses or physicians. In most cases, they have one year of postsecondary training, while registered nurses have at least a college education, with a bachelor's degree becoming increasingly common.

While the number of registered nurses increased substantially in the 1980s, a slowdown in hiring and staff cuts through attrition in the 1990s transformed a perceived surplus into a perceived shortage. Between 1991 and 2001, the number of registered nurses grew a modest 2% (Table 1), while the number of head nurses and supervisors fell by 48% because of the elimination of line-manager positions. The ranks of registered nurses have grown more slowly than the total population with the result that the per capita ratio has shrunk, dropping from 93.3 nurses per 10,000 population in 1991 to 82.5

**Chart B: As the proportion of women increases in health occupations, so too does part-time work.**



Source: Census of Canada, 2001

tively (Table 1). This is primarily because of the small number of people joining the profession—a consequence of both the low hiring rates in the early 1990s and falling enrolment in nursing programs (Chart D).

The profession's difficult working conditions—long hours, shift work, understaffing, and low availability of full-time positions—may be a factor in the declining enrolments in college and university nursing programs. These conditions may also be responsible for the tendency among nurses to retire relatively early.

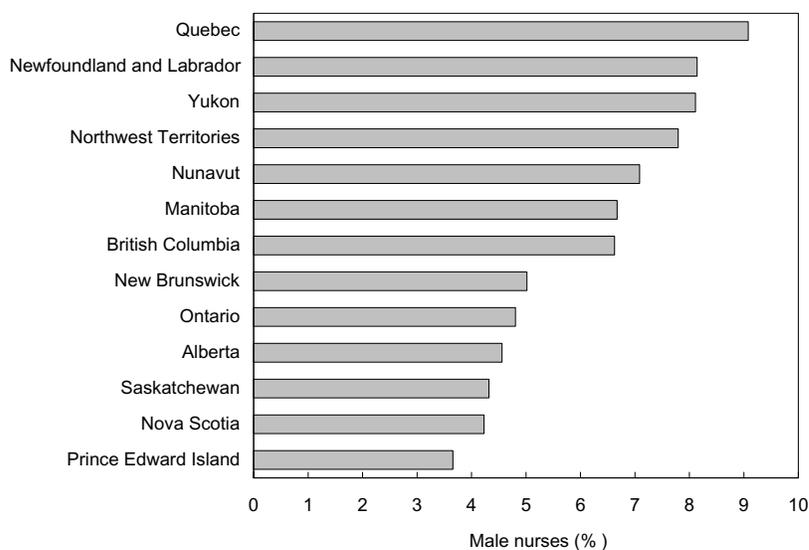
It has been estimated that the profession would lose more than 64,000 registered nurses between 2001 and 2006 because of retirement or premature death (CIHI 2003a).<sup>7</sup> This number represented

in 2002 (Table 4).<sup>5</sup> The ratio declined across Canada, with Alberta and British Columbia having the lowest in 2001.<sup>6</sup>

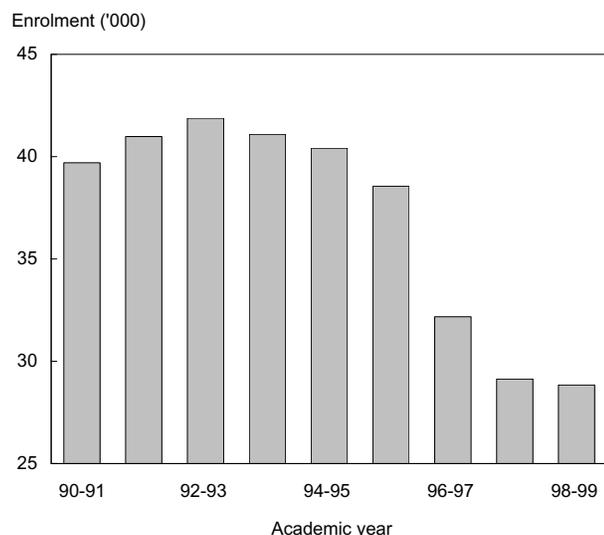
Exacerbating the situation, the number of licensed practical nurses decreased by 11% between 1991 and 2001. The decline affected just about every part of Canada, with British Columbia, Ontario and Alberta having the lowest overall ratio in 2001.

The nursing profession is still overwhelmingly female—93.8% in 2001, compared with 94.6% in 1991. Quebec had the highest proportion of male nurses, at 9.1%, compared with 3.7% in Prince Edward Island (Chart C). Registered nurses and licensed practical nurses are among the health professionals whose average age increased most between 1991 and 2001—4.1 and 4.4 years respec-

**Chart C: Overall, women make up 95% of nurses, but the proportion of men varies by province.**



Source: Census of Canada, 2001

**Chart D: Postsecondary enrolment in nursing programs has fallen.**

Sources: Community College Student Information System; University Student Information System

28% of the ranks in 2001. British Columbia would be most affected with 32% likely to retire between 2001 and 2006; the Atlantic region would lose the least with 22%.

No comparable forecasts have been done for licensed practical nurses. According to the Licensed Practical Nurses Database (LPNDB), however, more than half of those currently working as licensed practical nurses will be 55 or over by 2012, and a large proportion will be eligible for retirement between now and then—60% in British Columbia and about 42% in Nova Scotia (CIHI 2003b).

Because of the shortage of doctors, governments are now considering expanding the role of nurses by allowing them to take on duties normally carried out by physicians. With increased responsibilities, the

growing complexity of their jobs, as well as technological advances, more and more registered nurses now have bachelor's degrees. In fact, several provinces announced in the late 1990s that a bachelor's degree in nursing would become a prerequisite (CIHI 2003c). The proportion of registered nurses with at least a bachelor's degree quintupled during the period, from about 5% in 1991 to nearly 25% in 2001.

#### Work intensity and annual employment income

The low availability of full-time positions for nursing staff has been making headlines for years. However, in 2001, nurses were among the health professionals whose average hours per week increased the most (nearly 8%) relative to 1991 (Table 5).

In addition, the proportion of nurses working full year, full time increased—registered nurses from 50% to 58%, licensed practical nurses from 50% to 56%.<sup>8</sup> Whether the work is full- or part-time has numerous effects in the area of employment benefits. According to the Registered Nurses Database, the number of full-time positions has actually increased since 1998 (CIHI 2003c), growing faster than the number of part-time positions. These gains were made at the expense of casual positions.

**Table 4: Nurses per 10,000 inhabitants**

	Registered nurses		Registered and licensed practical nurses		
	Census 1991	CIHI 2001	Census 1991	CIHI 2001	
<b>Canada</b>	<b>93.3</b>	<b>82.5</b>	<b>74.1</b>	<b>113.2</b>	<b>98.4</b>
Newfoundland and Labrador	91.6	98.4	102.0	135.5	147.6
Prince Edward Island	108.3	100.7	91.2	145.0	141.2
Nova Scotia	113.8	100.2	90.6	140.4	126.1
New Brunswick	105.5	97.3	97.8	127.0	122.4
Quebec	87.1	82.1	78.7	109.1	100.7
Ontario	92.2	81.6	67.4	110.7	92.8
Manitoba	108.3	96.9	89.4	133.0	109.9
Saskatchewan	97.3	89.6	80.8	118.5	107.4
Alberta	97.7	78.7	74.3	117.5	95.8
British Columbia	92.2	73.4	66.4	103.4	88.7
Territories	73.0	81.6	103.4	83.9	98.3

Sources: Census of Canada; Canadian Institute for Health Information

**Table 5: Annual earnings and work intensity of health professionals**

	Total				Working full year, full time			
	Median income		Average hours		Median income		Average hours	
	2000	Change 1990-2000	2001	Change 1991-2001	2000	Change 1990-2000	2001	Change 1991-2001
	\$	%	%	%	\$	%	%	%
<b>Non-health professionals</b>	<b>41,500</b>	<b>-2.5</b>	<b>34.7</b>	<b>3.0</b>	<b>50,000</b>	<b>-2.1</b>	<b>43.2</b>	<b>3.1</b>
<b>Health professionals</b>	<b>42,000</b>	<b>15.1</b>	<b>34.2</b>	<b>5.2</b>	<b>48,800</b>	<b>8.4</b>	<b>42.7</b>	<b>0.9</b>
Specialists	110,100	-7.0	46.6	-5.5	125,700	3.3	54.5	-2.7
General practitioners	97,000	-0.3	46.4	-2.9	104,100	-4.9	53.5	-2.2
Dentists	80,000	-8.4	37.0	2.8	95,900	-1.5	42.3	1.7
Veterinarians	50,000	2.8	42.8	-4.7	55,800	-0.3	49.7	-3.5
Optometrists	62,000	-2.0	37.1	6.3	70,000	-4.1	43.0	4.9
Chiropractors	42,000	-30.9	37.2	-1.6	50,000	-29.1	42.9	1.9
Other diagnosing and treatment	27,000	-19.6	33.1	7.1	35,000	-17.8	43.0	2.9
Pharmacists	52,000	6.9	35.3	2.3	59,600	6.7	42.5	0.0
Dietitians and nutritionists	33,000	-3.1	30.1	4.2	42,500	-7.9	39.8	1.8
Audiologists and speech-language pathologists	45,000	5.7	31.8	4.6	50,900	-0.4	40.2	4.1
Physiotherapists	40,600	13.1	32.2	5.6	48,700	5.4	40.4	1.5
Occupational therapists	40,000	9.6	30.6	0.7	46,000	5.2	39.2	1.6
Other therapy and assessment	28,000	21.1	30.3	9.0	35,000	8.0	40.8	0.5
Head nurses and supervisors	48,000	3.3	33.6	4.3	51,400	3.1	41.0	4.3
Registered nurses	40,000	17.4	31.5	7.9	46,000	8.0	40.3	2.3
Licensed practical nurses	28,000	11.0	30.7	7.7	31,200	2.7	39.8	1.5

Source: Census of Canada

The median annual employment income of registered nurses rose over 17% in real terms during the 1990s—the second largest increase after therapy and assessment professionals (21%).<sup>9</sup> Licensed practical nurses also saw significant growth in their earnings (11%).

Full-year, full-time registered nurses had the largest gain in median earnings among professionals (8.0%). Because of their large proportion, this increase was a major factor in the 8.4% rise for all health professionals between 1990 and 2000. Licensed practical nurses had a modest 2.7% increase. The gains are attributable in part to increases in hours worked per week (2.1%) and average age, but they may also reflect the growing scarcity of professionals of this type.

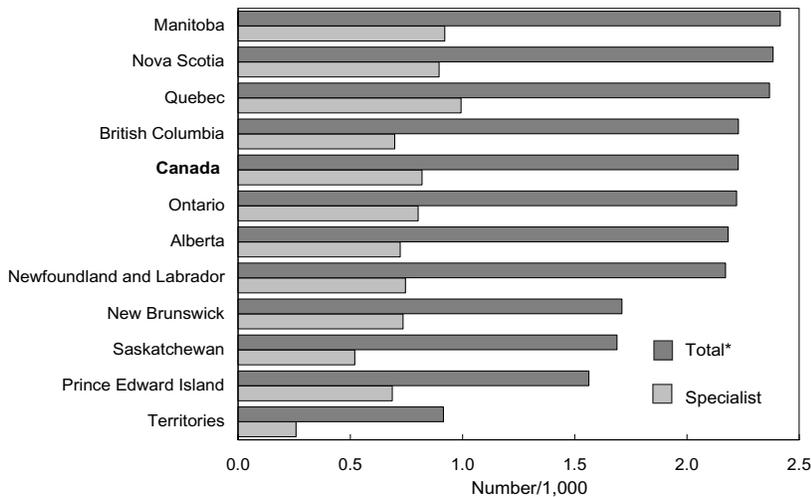
### General practitioners and specialists

Professionals in the health sector increased by just under 9% between 1991 and 2001, while professionals in other sectors went up by 36%. General practi-

tioners increased by just under 12%, while specialists rose 34% as a result of the growing preference of physicians for specialized medicine over family practice (Chan 2002).<sup>10</sup>

Canada had 2.2 physicians per 1,000 population in 2001, well below the 2.9 average for OECD countries (OECD 2003).<sup>11</sup> Most provinces had comparable ratios (ranging between 2.2 and 2.4) except New Brunswick, Saskatchewan, Prince Edward Island and the Territories, where the ratio varied from 1.7 to less than 1 (Chart E). These regional disparities can be ascribed to a number of factors. For example, some remote regions may have difficulty attracting physicians and may be served by neighbouring regions with higher ratios. The number of general practitioners and specialists includes interns, and since some provinces have greater enrolment capacity than others, their ratios may be artificially inflated.

**Chart E: Prince Edward Island and the Territories have the lowest doctor-to-inhabitant ratios.**



Source: Census of Canada, 2001  
 \* Specialists plus family practitioners  
 Note: Excludes doctors working outside the country

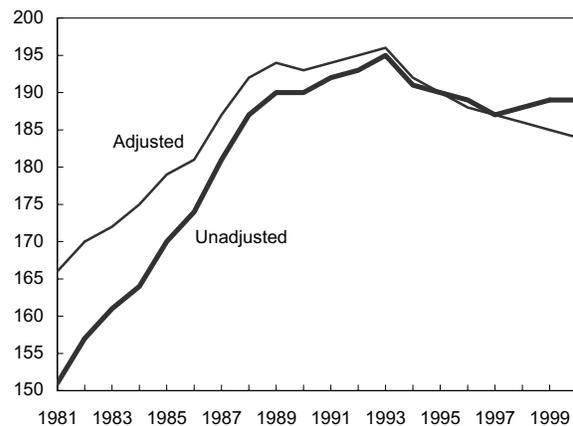
General practitioners and specialists have the highest average age among professionals—for several reasons (Table 1). In general, physicians retire relatively late, as confirmed by the high proportion who are 55 or older. In addition, enrolment in faculties of medicine has been falling and years of post doctoral study has been rising, as family medicine loses ground to specialized medicine.<sup>12</sup>

In 2001, about 48% of professionals outside health were women, compared with 78% in the health sector. While this proportion remained stable between 1991 and 2001, the proportion in some traditionally male occupations increased—from 27% to 34% among general practitioners, and from 23% to 32% among specialists. The rise reflects incoming medical graduates, the majority of whom since 1996 have been

The number of specialists per capita also varied by province and territory. However, the pattern was much the same as for the overall ratio—the same provinces and regions had high and low ratios. Whether the specialist ratio is high or low may be related to whether the area is urban or rural. Specialists are found more often in large urban areas. In rural areas, general practitioners are more likely to attend births and provide palliative and urgent care—functions carried out in urban areas by specialists (CIHI and Statistics Canada 2003).

The ratio of physicians per 1,000 population does not reflect hours worked, productivity, nor heavier demand for their services within certain population groups. These factors have been taken into account in the adjusted ratio (Chan 2002). This ratio accords physicians a weight, based on the number of medical procedures they carry out, by age and sex. A weight is also given to the population based on different health needs, by age and sex. While the unadjusted ratio points to a slight increase in the per capita number of physicians over the past few years, the adjusted ratio indicates a steady decline after a peak in 1993 (Chart F).

**Chart F: The unadjusted doctor-to-inhabitant ratio increased slightly at the end of the 1990s, the adjusted ratio continued to decline.**



Source: Canadian Institute for Health Information

women (CIHI 2002). The relatively recent influx of women into these professions is reflected in their being, on average, younger than their male counterparts (40.6 versus 47.8).

The proportion of self-employed workers in the labour force grew between 1991 and 2001. While rates varied widely by sex and occupation, health professionals seemed much more inclined to be self-employed—17% in 2001, compared with 13% in other sectors (Table 6). However, this appears to be a male tendency—50% versus 8% of women. The low percentage is partly the result of women being concentrated in occupations where self-employment is uncommon such as nursing. On the other hand, women are in the minority among specialists, general practitioners, dentists, veterinarians, optometrists and chiropractors, most of whom are self-employed. And even in occupations where self-employment is high, proportionally fewer women than men are self-employed.

### Work intensity and annual earnings

Average hours worked by specialists and general practitioners declined appreciably between 1991 and 2001 (-6% and -3% respectively) (Table 5). In addition, fewer worked full year, full time—specialists went from about 68% in 1991 to 61% in 2001, general practitioners from 67% to 65%.

The decline may be due to the higher proportion of women in these occupations. Between 1991 and 2001, women accounted for most (73%) of the increase in the physician workforce—particularly among general practitioners where they accounted for virtually all of it (98%). Despite the major influx of

**Table 6: Self-employment among health professionals**

	Both sexes		Men		Women	
	1991	2001	1991	2001	1991	2001
	%					
<b>Non-health professionals</b>	<b>9.4</b>	<b>12.6</b>	<b>12.1</b>	<b>16.0</b>	<b>6.2</b>	<b>8.9</b>
<b>Health professionals</b>	<b>13.9</b>	<b>16.8</b>	<b>50.7</b>	<b>49.6</b>	<b>4.3</b>	<b>7.6</b>
Specialists	54.5	52.9	57.6	58.4	44.3	40.8
General practitioners	62.6	61.6	66.3	65.5	52.4	54.1
Dentists	81.5	77.6	83.6	82.5	70.2	64.7
Veterinarians	52.5	46.8	60.5	54.0	35.6	38.9
Optometrists	73.8	80.5	88.0	87.0	50.4	72.3
Chiropractors	86.3	87.3	89.5	90.9	69.4	77.8
Other diagnosing and treatment	49.3	66.4	63.8	71.7	39.3	62.8
Pharmacists	16.7	14.2	27.4	24.6	6.7	6.6
Dietitians and nutritionists	7.5	9.0	17.0	20.8	7.0	8.2
Audiologists and speech-language pathologists	5.5	10.5	19.0	24.7	4.4	9.2
Physiotherapists	14.3	23.5	28.9	37.2	11.7	20.0
Occupational therapists	7.1	11.2	11.0	13.2	6.7	11.0
Other therapy and assessment	13.1	17.8	8.4	16.6	14.7	18.1
Head nurses and supervisors	0.9	0.8	2.7	1.5	0.8	0.8
Registered nurses	0.7	1.1	1.0	1.1	0.7	1.1
Licensed practical nurses	0.7	0.8	1.7	0.9	0.6	0.8

Source: Census of Canada

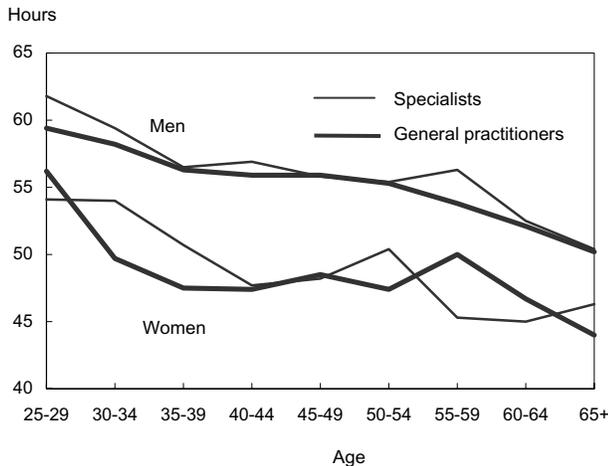
women into these occupations, those working full year, full time accounted for the majority of the increase among these professionals. However, full-year, full-time women physicians averaged just under 50 hours a week, while their male counterparts worked 56 hours. The gap varies with age, increasing in the age range where women usually have children and declining thereafter (Chart G). Nevertheless, in 2001, there was a significant difference in most age groups.

The decline in the proportion of full-year, full-time specialists and general practitioners may also be because they are among the oldest of all health professionals, and

hours worked tend to decrease after age 55 (Chart H). The number of health professionals 55 and over rose by 35% between 1991 and 2001.

The high average age of physicians, combined with the influx of women into these occupations, accentuates the perception of a shortage, since women and older physicians work fewer hours than male physicians under age 55. Other factors, such as rules designed to reduce the number of medical procedures and some hospitals' need to cut the number of available beds, also lengthen waiting lists and reinforce the perception of a doctor shortage.

**Chart G: Among physicians, regardless of age, women worked fewer hours.**



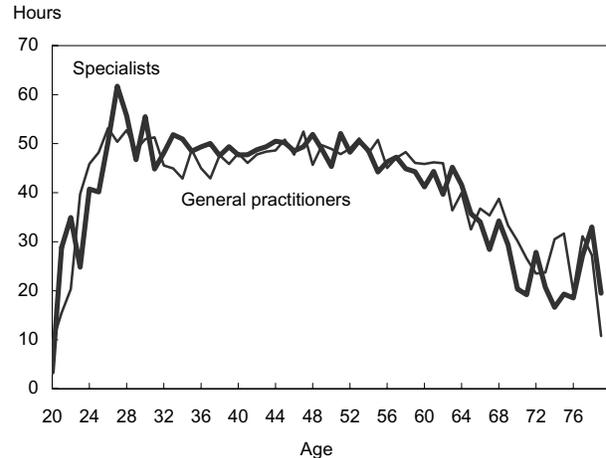
Source: Census of Canada, 2001

Full-year, full-time specialists and general practitioners are working fewer hours—2.7% and 2.2% less respectively. Yet administrative data indicate that hours worked by physicians vary from year to year. Since most are paid by the procedure, another way of measuring their work intensity is to look at the number of medical procedures performed per unit of time. This measure, obtained from administrative data, indicates that full-year, full-time physicians of both sexes performed more medical procedures in 1998-1999 than in 1989-1990 (CIHI 2002). In both periods, male doctors performed more procedures. In addition, despite a decline in average weekly hours worked, specialists and general practitioners combined still worked more hours per week in 2001 than other health professionals (54.5 and 53.5 respectively).

Median annual earnings rose 3.3% in real terms for full-year, full-time specialists and fell 4.9% for general practitioners. These variations contrast with the 8.4% growth for all health professionals. By way of comparison, median annual earnings declined by 1.9% for all workers and by 2.1% for other professionals.

The earnings changes affecting general practitioners and specialists may be linked to several factors. While on one hand the rise in average age should cause the employment income of physicians to rise, the increase

**Chart H: After age 55, doctors cut back on their hours.**



Source: Census of Canada, 2001

in women entering the profession and fewer self-employed would help explain the opposite trend.<sup>13</sup> Increased operating expenses<sup>14</sup> as well as a tendency to underbill may also account for the lack of growth in physicians' incomes. There are various reasons for underbilling. Some physicians may simply be unaware that certain procedures can be billed. Others who are uncomfortable with billing for some procedures or who want to simplify administrative processes do not bill their patients for some services not covered by health insurance (blood or urine samples). Underbilling could amount to as much as 15% of a physician's annual income (Clarke 2001).

**Annual earnings by province**

The annual employment income of physicians (specialists and general practitioners) varies considerably by province (Table 7). Even if the analysis is confined to the income of full-year, full-time workers, there may be proportional differences in number of hours worked between provinces due to such factors as the age-sex distribution of professionals, the scarcity of professionals, and the composition of the population they serve. In addition, the specialties of physicians in certain provinces, the types of clinics operated by general practitioners, and the proportion who are self-employed may affect their average earnings.

**Table 7: Median annual employment income of full-year, full-time health workers, 2000**

	Specialists	Nurses		
		General practitioners	Head nurses, supervisors and registered nurses	Licensed practical nurses
			\$	
<b>Canada</b>	<b>125,700</b>	<b>104,100</b>	<b>46,500</b>	<b>31,200</b>
Atlantic provinces	144,600	110,000	42,500	28,000
Quebec	130,000	100,000	46,400	33,000
Ontario	132,000	120,000	49,000	33,700
Prairies	100,000	100,000	46,000	29,900
British Columbia	100,500	85,000	50,000	40,000
Territories	F	F	60,000	F

Source: Census of Canada

Median average employment income differs by \$45,000 between specialists in the Atlantic provinces and the Prairies. A gap of 35,000 exists between Ontario and British Columbia for general practitioners.

Because the nursing profession is unionized, income disparities may reflect the intensity of salary negotiations by various unions, the age composition of the workforce, greater needs in certain regions, a shortage of nurses, the usual number of hours worked, and the proportion of overtime. Because earnings data for registered nurses include head nurses and supervisors, the gaps may also reflect the higher pay given to supervisory staff in some provinces. For example, a \$8,000 difference exists between the earnings of full-year, full-time nurses in British Columbia and their counterparts in the Atlantic provinces.

### Income gap between men and women

In 2000, the income of women health professionals working full year, full time fell 36% short of the income of their male counterparts (Table 8). But the gap varied by occupational group, ranging from 53% for specialists to 7% for audiologists, speech-language pathologists, physiotherapists, and occupational therapists. But because women work fewer hours than men, the gap must be adjusted to reflect the difference in hours worked—reducing it for most occupations.

However, a substantial gap remains for specialists and general practitioners. For example, the average annual earnings of women specialists working full year, full time were 44% less than those of their male counterparts. While the gap was somewhat smaller for general practitioners, women still earned 20% less than men.

Part of the gap is probably caused by age, province, locality, and salaried or self-employment status. The effect of these variables was tested with a Oaxaca decomposition model. About a third of the gap is due to women

being younger and less likely to be self-employed. The remaining two-thirds can be attributed to the field of specialization, physicians being paid by the procedure, women performing fewer medical procedures than men, and other unobservable sex differences.

### Summary

In health occupations, women are in the majority—nearly four out of five in 2001. In addition, health workers are somewhat older on average than other workers, 41.1 compared with 38.7. And their average age has risen more rapidly than in other occupations since 1991.

Health workers generally increased their work intensity—many increased their work hours, and the proportion working full year, full time was up sharply. Nevertheless, part-time work remained common, probably because of the large proportion of women in the health sector, as well as the difficulty of obtaining full-time nursing positions. Health occupations also had a relatively low unemployment rate in 2001.

During the 1990s, health workers in general saw their median annual earnings rise twice as much as that of other workers: 6.4% compared with 3.1%. Professionals stood out with the strongest increase (15.1%), with much smaller gains for support personnel (7.9%). In part, these increases reflected an increase in both work intensity and average age.

The ranks of nurses (registered and licensed practical nurses) grew more slowly than the total population with the result that the per capita ratio shrank, dropping from 113.2 per 10,000 in 1991 to 98.4 in 2001.

**Table 8: Annual employment income of full-year, full-time health professionals, by sex, 2000**

	Men	Women	Ratio of women to men	
			Unad-justed	Adjusted for hours of work
	\$			%
<b>Non-health professionals</b>	<b>55,300</b>	<b>44,400</b>	<b>80</b>	<b>83</b>
<b>Health professionals</b>	<b>70,000</b>	<b>45,000</b>	<b>64</b>	<b>72</b>
Specialists	150,000	71,000	47	56
General practitioners	120,000	84,000	70	80
Dentists	101,900	67,000	66	65
Veterinarians	61,500	47,000	76	84
Optometrists, chiropractors, and other diagnosing and treatment	60,000	40,000	67	73
Pharmacists, dietitians and nutritionists	62,800	50,000	80	87
Audiologists and speech-language pathologists, physiotherapists and occupational therapists, and other therapy and assessment	50,000	46,300	93	100
Head nurses and supervisors and registered nurses	49,900	46,000	92	95
Licensed practical nurses	34,000	31,000	91	93

Source: Census of Canada

The profession's difficult working conditions—long hours, shift work, understaffing, and low availability of full-time positions—may be a factor in the declining enrolments in college and university nursing programs. These conditions may also be responsible for the tendency among nurses to retire relatively early. However, the number of full-time positions has actually increased since 1998, more rapidly than the number of part-time positions. These gains were made at the expense of casual positions. The increase in full-time positions probably explains in part why nurses were among the health professionals whose average hours per week increased the most from 1991 to 2001.

Full-year, full-time registered nurses had the largest gain in median earnings among professionals (8.0%). Licensed practical nurses had a modest 2.7% increase. The gains are attributable in part to increases in hours worked per week (2.1%) and average age, but they may also reflect the growing scarcity of professionals of this type.

Canada had 2.2 physicians per 1,000 population in 2001, well below the 2.9 average for OECD countries. The provinces had comparable ratios (ranging between 2.2 and 2.4) except New Brunswick, Saskatchewan, Prince Edward Island and the Territories, where the ratio varied from 1.7 to less than 1.

General practitioners and specialists are among the oldest professionals. This is due in part to the low number of entrants, a consequence of a decline of enrolment in faculties of medicine and an increase in the number of years of postdoctoral study as family medicine loses ground to specialized medicine. Also, physicians retire relatively late.

The median annual earnings of full-year, full-time specialists were up 3.3% in 2000 compared with 1990, while general practitioners saw their earnings fall by 4.9%. These small variations differ dramatically from the 8.4% increase observed for health professionals and occurred despite a significant increase in average age. The variations also coincided with an increase in the influx of women, a decline in hours worked relative to 1991, and a decrease in the proportion of self-employed.

Women health professionals who worked full year, full time earned 64% as much as their male counterparts in 2001. The size of the gap depended on the occupation, ranging from 53% for specialists to 7% for audiologists, speech-language pathologists, physiotherapists, and occupational therapists. After the fewer hours worked by women was taken into account, a substantial gap remained for some occupations. Among specialists and general practitioners, a third of the gap was the result of women being younger and less likely to be self-employed. The remaining two-thirds could be attributed to factors such as field of specialization, fewer medical procedures performed by women, and unobservable differences.

## ■ Notes

1 Excludes unemployed persons who have never worked, since they had no occupation to report. Unpaid family workers and persons not reporting earnings for the year preceding the census were also excluded.

2 Among health workers, the coefficient of correlation between the proportion of women in each occupation and the proportion working part time was .77.

3 Average employment income from employment comprises wages and salaries and net income from farm or non-farm self-employment.

4 The 'full-year, full-time' category is an artificial construct: weeks worked are for the year preceding the census while hours worked are for the week before the census. It was adopted because full-time workers usually have a more stable work pattern than the rest of the labour force.

5 The figures include head nurses and supervisors.

6 This ratio differs from one based on the Registered Nurses Database (RNDB) because the census does not distinguish between registered nurses (RNs) and registered psychiatric nurses (RPNs). In the four western provinces, RPNs are not included in the RN group. Hence, in these provinces the RN ratio per 10,000 population does not include RPNs, and the RNDB ratio is lower than the census ratio. Also, unlike the census, the RNDB is an administrative database of nurses who have registered and obtained a licence to practise. Associate and inactive members and nurses who are working outside Canada or have left the labour market are excluded. The figures for this ratio were taken from *Workforce Trends of Registered Nurses in Canada, 2002*, p. 53 (see *References*).

7 According to this study, the average age of retirement for nurses is between 55 and 58.

8 Hours reported relate to the week preceding the census for all jobs held during that period. Nearly 16% of all nurses were working more than one job in 2002, according to the RNDB and CIHI, compared with less than 5% of all workers according to the 2002 Labour Force Survey.

9 This group includes art therapists, play therapists and music therapists.

10 Unless otherwise indicated, the data include a small portion of Canadians working outside the country. It is possible to identify these workers in 2001 but not in 1991. For comparability, they were included in 2001 since their number is not large enough to affect the general trends.

11 The ratio for Canada is calculated by OECD based on Southam's medical database. The average of 2.9 physicians per 1,000 population for all OECD countries compares with Canada's 2.1. This figure represents the number of physicians according to Southam plus residents and interns. Without the latter two, the ratio is about 1.87. The ratio obtained from the 2001 Census, which includes residents and interns, is 2.2—slightly higher. Several factors account for the discrepancies. For example, unlike the census, Southam does not include physicians who are semi-retired or those on military bases. Both Southam and the census exclude physicians working outside the country.

12 According to CIHI, in 1992, 80% of medical students opted for family medicine, compared with 45% in 2000

13 Self-employed general practitioners and specialists. In 2001, the latter earned almost twice as much as salaried physicians (\$130,000 compared with \$77,000). In 1991, the differences were larger. Self-employed general practitioners and specialists earned \$125,000, and employees \$75,000.

14 Self-employed physicians are required to report their net business income—that is, gross income less operating expenses.

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