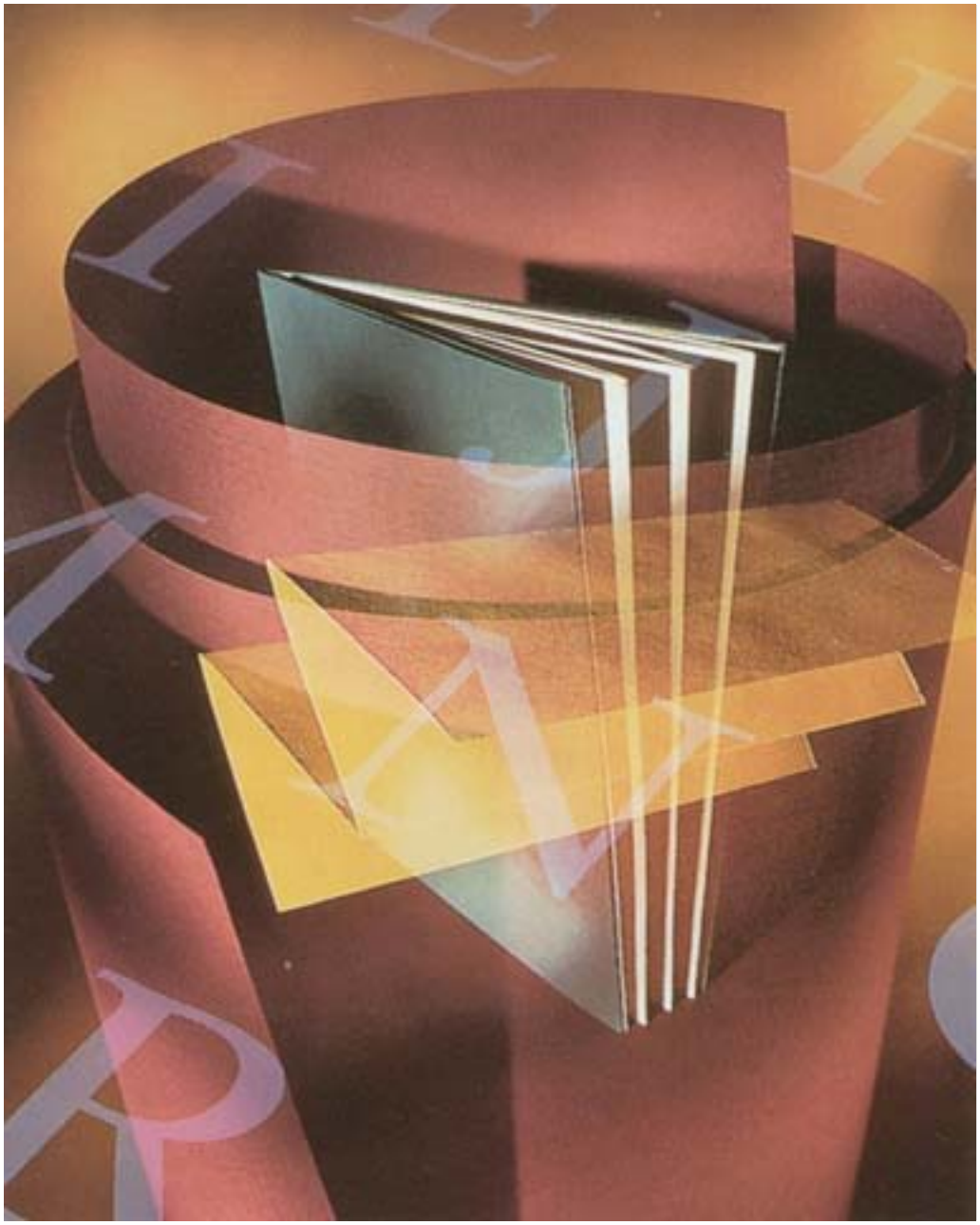
Catalogue no. 75-001-XIE

PERSPECTIVES

ON LABOUR AND INCOME

DECEMBER 2003
Vol. 4, No. 12



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(Catalogue no. 75-001-XIE; aussi disponible en français: *L'emploi et le revenu en perspective*, nº 75-001-XIF au catalogue) is published monthly by authority of the Minister responsible for Statistics Canada. ©Minister of Industry 2003.
ISSN: 1492-496X.

PRICE: CDN $6.00 per issue, CDN $52.00 for a one-year subscription, plus applicable taxes.

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p	preliminary
r	revised
x	confidential
E	use with caution
F	too unreliable to be published

Highlights

In this issue

Fighting the odds

- Three-quarters of Canadians 15 and over (18.9 million) gambled in 2002. According to the Problem Severity Gambling Index, the majority of these gamblers (93.7%) did so without any problems, while the remainder exhibited at-risk (5.7%) or problem (0.6%) gambling behaviour.
- Buying lottery tickets was the most popular form of gambling (65.0% participation rate). Those who bought tickets as one of their gambling activities were the least likely to be at-risk or problem players (6.5%). Although playing video lottery terminals was less common (6.1% participation rate), it was the most addictive with 25.6% of players falling into the at-risk or problem categories.
- Those significantly more likely to be at risk or to have a gambling problem included men (7.8%), Aboriginal persons (18.5%), those with less education (7.6%), and weekly (14.3%) or daily (30.3%) gamblers.
- Compared with non-problem gamblers, those with a problem had significantly higher rates of alcohol dependence (15% versus 2%), psychological distress (29% versus 9%), family problems due to gambling (49% versus 0%), and financial problems due to gambling (53% versus 0%).
- Of the 85% of problem gamblers who recognized they had a problem, over half said they had tried to stop gambling in the past year, but were unable to do so.
- One-quarter of problem gamblers reported suffering major clinical depression at some point in their life, and one-fifth had contemplated suicide during the previous year.

Health care professionals

- Professionals made up 57% of all workers in the health sector in 2001. The majority (63%) were nurses, with physicians—general practitioners and specialists—far behind at 14%.
- Full-year, full-time registered nurses had the largest gain in median income among professionals (8.0%). Because of their large number, this increase was a major factor in the 8.4% rise in the median income of all health professionals between 1990 and 2000. Licensed practical nurses had a modest 2.7% increase.
- General practitioners and specialists are among the oldest professionals, because 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.
- Between 1991 and 2001, women accounted for most (73%) of the increase in the physician workforce. This was particularly true for general practitioners, where women accounted for virtually all of the increase (98%).
- The median annual earnings of women specialists working full year, full time were 44% less than the earnings of their male counterparts. While the gap was somewhat smaller for general practitioners, women still earned 20% less than men.
- From 1990 to 2000, health workers saw their median annual earnings rise twice as much as those of other workers: 6.4% compared with 3.1%. Professionals stood out with the largest increase (15.1%), with much smaller gains for support personnel (7.9%).

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Fighting the odds

Katherine Marshall and Harold Wynne

OVER THE PAST DECADE the gambling industry has flourished. Canadians have steadily increased their wagering—from an estimated $2.7 billion in 1992 to about $11.3 billion in 2002 (Marshall 1996, 1998, 2003). While increased GDP, employment and government revenue[1] may be the upside of gambling, rising social and health consequences of problem gambling are the downside. Although most 6/49 players or casino visitors indulge purely for fun and entertainment (and the dream of a jackpot), the gambling behaviour of a small segment of the population will be problematic.

In the American Psychological Association's *Diagnostic and Statistical Manual IV,* pathological gambling is defined as an impulse control disorder. The Canadian Problem Gambling Index (CPGI), used to screen for problem gamblers in the general population, defines problem gambling as "gambling behaviour that creates negative consequences for the gambler, others in his or her social network, or the community" (Ferris and Wynne 2001, p. 2). These consequences can be as severe as bankruptcy, job loss, marital breakdown or suicide.

Cycle 1.2 of the Canadian Community Health Survey—Mental Health and Well-being (CCHS 1.2), offers first-time information on problem or pathological gambling across Canada. Gambling behaviour and socio-economic characteristics of non-problem, at-risk, and problem gamblers can now be examined. Issues associated with problem gambling, such as income, health, and social relations can also be explored (see *Data source and definitions*).

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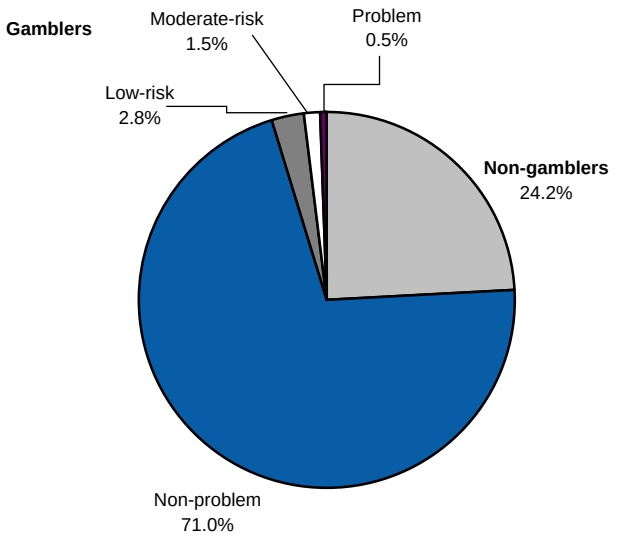
Majority gamble, but minority at risk

Where there is gambling, there will be people with a problem.[2] Of the estimated 18.9 million Canadians who gambled in 2002, 17.7 million were non-problem gamblers, while 1.2 million (5% of the adult population) had the potential to become problem gamblers or were already (Chart A). By definition, problem gamblers have suffered adverse effects from their gambling behaviour.

According to the Problem Gambling Severity Index (PGSI), part of the CPGI, 700,000 gamblers were low-risk, 370,000 were moderate-risk, and 120,000 were problem gamblers. Low-risk gamblers scored between 1 and 2 on the PGSI, moderate-risk between 3 and 7, and problem gamblers 8 or more. Scores

Chart A: Gambling was a problem or potential problem for 5% of the adult population.



Source: Canadian Community Health Survey 1.2, 2002

Data source and definitions

The Canadian Community Health Survey (CCHS) provides regular and timely cross-sectional estimates of health determinants, health status, and health system utilization. The initial year (2000) and every odd year thereafter (from 2001) collects generic health information from 130,000 respondents. During the even years, the survey sample is smaller (roughly 30,000) and addresses a specialized topic. Cycle 1.2, on Mental Health and Well-Being, was held in 2002. Its main objective was to provide national and provincial estimates of major mental disorders and problems, and to illuminate the issues associated with disabilities and the need for and provision of health care. The survey contained questions on a wide range of disorders and problems, including a section on 'pathological gambling.'

The target population of the CCHS 1.2 excludes those living in the three territories, individuals living on reserves or crown land, residents of institutions, full-time members of the Armed Forces, and residents of some remote regions.

The **Problem Gambling Severity Index** (PGSI) is part of the Canadian Problem Gambling Index (CPGI), an instrument developed over a three-year period in the late 1990s by a group of researchers in response to an interprovincial task force on problem gambling. The CPGI is considered a more appropriate measure for the general population than two other well known clinical instruments: the South Oaks Gambling Screen and the American Psychological Association's medical diagnostic measure DSM-IV (Ferris and Wynne 2001). Based on numerous questions on gambling involvement, problem gambling behaviour, and adverse consequences (disruption of personal, family or professional life), the CPGI classifies respondents as non-gamblers, non-problem gamblers, low-risk gamblers, moderate-risk gamblers, or problem gamblers.

In a CPGI modification, respondents who seldom gambled in the previous year (less than five times) or who clearly stated that they were not gamblers were not asked the gambling severity questions. Also, gambling activities were regrouped into fewer categories than used in the original CPGI. The PGSI assesses gambling problems using a nine-item scale. Each item carries a score of 0 to 3, making the total index range from 0 to 27. All nine items refer to the past 12 months.

- How often have you bet more than you could really afford to lose?
- How often have you needed to gamble with larger amounts of money to get the same feeling of excitement?
- How often have you gone back another day to try to win back the money you lost?
- How often have you borrowed money or sold anything to get money to gamble?
- How often have you felt that you might have a problem with gambling?
- How often have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?
- How often have you felt guilty about the way you gamble or what happens when you gamble?
- How often has your gambling caused you any health problems, including stress or anxiety?
- How often has your gambling caused any financial problems for you or your household?

Non-problem gamblers gamble infrequently (less than five times per year), declare themselves not gamblers, or score zero on the PGSI.

Low- or moderate-risk gamblers gamble more than five times a year and show some indication of problem gambling behaviour. Low-risk gamblers scored between 1 and 2 on the PGSI and have most likely not yet experienced any adverse consequences from gambling. Moderate-risk gamblers scored between 3 and 7 on the PGSI and may or may not have experienced adverse consequences.

Problem gamblers gamble more than five times a year, and the gambling behaviour creates negative consequences for them, others in their social network, or the community. Problem gamblers scored between 8 and 27 on the PGSI.

Alcohol dependence is measured by the responses to questions on alcohol use, behaviour, and attitudes towards drinking. The definition includes alcohol-related withdrawal, loss of control, or social or physical problems. The questions are based on an international instrument that provides diagnostic estimates for psychoactive substance use disorder.

Distress scale is a rating based on the responses to questions on psychological distress during the one-month period prior to the survey. This analysis used the K6-Distress Scale, whose definition and criteria are based on the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R) used by the American Psychiatric Association.

Major depression is a period of two weeks or more with persistent depressed mood and loss of interest or pleasure in normal activities, accompanied by symptoms such as decreased energy, changes in sleep and appetite, impaired concentration, and feelings of guilt, hopelessness, or suicidal thoughts. The definition and criteria are from the *Diagnostic and Statistical Manual of Mental Disorders* used by the American Psychiatric Association.

were based on a combination of gambling involvement, problem gambling behaviour, and adverse consequences.

No trend data exist on problem gambling rates, but research has shown that increased access to gambling contributes to an increase in the prevalence of gambling-related problems (Volberg 1994). Increased accessibility, poverty, low socio-economic status, and substance abuse have been linked with problem gambling.

Gambling continues to expand; three-quarters (76%) of people 15 and over spent money on some form of gambling in 2002—with 38% doing so at least once a week (Table 1).[3]

Gambling in its various forms

Buying lottery tickets was by far the most popular gambling activity (65% participation rate), followed by instant win tickets (36%), and going to a casino (22%).[4] Many ticket buyers participated regularly—37% of lottery and 23% of instant win players on a weekly basis.

Table 1: Participation in gambling activities

	Population 15 and over	At least one activity	Lotteries	Instant win	Casinos	Bingo	VLTs not in casinos	Horse racing	Other*
Total ('000)	**24,997**	**18,911**	**16,225**	**9,039**	**5,420**	**2,099**	**1,514**	**1,040**	**5,276**
%	**100**	**76**	**65**	**36**	**22**	**8**	**6**	**4**	**21**
	'000					%			
Men	**12,286**	**78**	**68**	**34**	**22**	**5**	**7**	**5**	**27**
15 to 17	706	50	18	12	F	4[E]	2[E]	1[E]	39
18 to 24	1,406	73	52	40	31	7	13	5	39
25 to 44	4,769	81	73	39	24	4	9	6	30
45 to 64	3,774	84	78	34	22	4	6	5	23
65 and over	1,632	74	65	28	19	5	3	4	15
Women	**12,710**	**73**	**62**	**38**	**21**	**12**	**5**	**3**	**15**
15 to 17	660	34	12	13	F	6[E]	3[E]	1[E]	21
18 to 24	1,366	68	45	44	25	13	8	2[E]	20
25 to 44	4,738	77	68	44	21	13	6	4	16
45 to 64	3,852	78	70	38	24	12	4	4	13
65 and over	2,095	70	59	29	20	12	3	3	11
Province									
Newfoundland and Labrador	439	75	64	36	6	13	12	1[E]	23
Prince Edward Island	112	75	61	43	9	11	7	11	20
Nova Scotia	756	78	67	41	19	11	12	1[E]	22
New Brunswick	608	76	65	40	11	13	10	2[E]	21
Quebec	6,041	79	71	32	18	9	7	2	17
Ontario	9,656	75	64	38	26	8	2	6	22
Manitoba	865	74	63	30	29	11	21	5	23
Saskatchewan	759	76	64	36	25	9	15	2[E]	25
Alberta	2,429	72	61	31	18	8	12	4	24
British Columbia	3,332	75	63	44	21	6	3	3	23
Gambling frequency**	**18,911**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
1 to 7 times a week	7,271	38	37	23	3	21	11	5	15
1 to 3 times a month	4,374	23	23	26	8	17	18	6	18
1 to 11 times a year	7,266	38	40	51	88	62	71	89	68

Source: Canadian Community Health Survey 1.2, 2002
* *Includes betting on cards outside casinos, Internet gambling, speculative investments or other forms of gambling.*
** *Of those who gambled in the specified activity.*

Table 2: Personal characteristics and gambling behaviour

	Total gamblers		Non-problem	At-risk and problem gamblers			
				Total	At-risk		Problem
					Low	Moderate	
Total ('000)	**18,887**		**17,699**	**1,188**	**697**	**373**	**118**
%		**100.0**	**93.7**	**6.3**	**3.7**	**2.0**	**0.6**
	'000			%			
Men	9,610	100.0	92.2	7.8	4.4	2.6	0.7
Women	9,277	100.0	95.2	4.8*	2.9	1.4	0.5
				Years			
Average age**		44	45	40*	40	39	41
Personal income				%			
Less than $20,000	6,392	100.0	93.3	6.7	3.9	2.0	0.8
$20,000 or more	11,289	100.0	93.8	6.2	3.6	2.0	0.6
Level of education							
Less than postsecondary	9,689	100.0	92.4	7.6	4.5	2.4	0.7
Postsecondary	9,047	100.0	95.2	4.8*	2.8	1.5	0.5[E]
Racial background							
Non-Aboriginal	18,593	100.0	93.8	6.2	3.7	1.9	0.6
Aboriginal	217	100.0	81.5	18.5*	7.2[E]	8.3[E]	2.9[E]
Province							
Newfoundland and Labrador	330	100.0	93.7	6.3	3.7[E]	1.9[E]	F
Prince Edward Island	83	100.0	95.2	4.8[E]	2.5[E]	1.8[E]	F
Nova Scotia	588	100.0	94.3	5.7	3.3	1.4[E]	1.1[E]
New Brunswick	463	100.0	94.7	5.3	3.2[E]	1.5[E]	F
Quebec	4,787	100.0	95.4	4.6*	2.6	1.6[E]	0.4[E]
Ontario	7,213	100.0	93.5	6.5	3.8	2.1	0.6[E]
Manitoba	642	100.0	90.6	9.4*	5.3	3.3	0.8[E]
Saskatchewan	575	100.0	90.7	9.3*	5.4	2.5[E]	1.5[E]
Alberta	1,731	100.0	92.2	7.8*	4.7	2.3	0.7[E]
British Columbia	2,474	100.0	93.1	6.9	4.3	1.9	0.7[E]
Gambling frequency							
Daily	278	100.0	69.7	30.3*	16.4[E]	7.9[E]	6.0[E]
2 to 6 times a week	2,784	100.0	85.7	14.3*	7.2	5.4	1.6
Once a week	4,198	100.0	91.3	8.7	5.1	2.9	0.7[E]
Once a month	4,370	100.0	94.1	5.9*	4.2	1.2	0.5[E]
Once a year	7,257	100.0	98.9	1.1*	0.7	0.4[E]	F
Gambling activity							
Lotteries	16,202	100.0	93.5	6.5	3.8	2.1	0.6
Instant win	9,027	100.0	90.6	9.4*	5.5	2.9	1.0
Casinos	5,413	100.0	86.7	13.3*	7.6	4.4	1.4
Bingo	2,098	100.0	84.5	15.5*	9.1	5.0	1.4
VLTs outside casinos	1,512	100.0	74.4	25.6*	13.2	9.0	3.4
Horse racing	1,038	100.0	84.2	15.8*	7.0	6.7	2.1[E]
Average activities**		1.9	1.9	3.0*	2.9	3.2	3.2

Source: Canadian Community Health Survey 1.2, 2002

* *Statistically significant difference at the .05 level. Tests were done between the at-risk proportion of the reference category and other categories within each variable (except for the provinces, which were compared with the Canada total).*

** *Significance tests were done between the non-problem and at-risk gambling populations.*

Only 3% of those who visited a casino in the past year did so weekly. Although bingo was played by relatively few gamblers (8%), it was the third most frequently played game—one in five played at least once a week.

Participation in gambling was high among both men (78%) and women (73%), and was 70% or higher among each age group over 24. Despite the legal age restriction of 18 in most provinces, one-half of young men and one-third of young women (aged 15 to 17) gambled in 2002. Indeed, a considerable number of these adolescents purchased provincially sanctioned lotteries and instant win games. Youth participation rates were highest in the 'other gambling' category—predominantly betting on cards or board games outside casinos, or on games of skill (such as pool or darts).

Differences in provincial participation rates reflect both accessibility to particular types of gambling and provincial cultural preferences. For example, VLTs in age-restricted locations, such as racetracks and bars, are permitted in Manitoba but not in Ontario, producing vastly different participation rates—21% and 2% respectively. Although bingo is permitted in all provinces, it is generally more popular in the Atlantic region. Betting on horse racing, also available nationwide, has relatively low participation rates. However, 11% of Prince Edward Islanders bet on the ponies in 2002, well above the national average of 4%, perhaps because harness racing is closely connected to the culture in that province (Jepson and Patton 1999).[5]

Those most at risk

Men who gambled were significantly more likely than women to be at-risk or problem gamblers—8% versus 5% (Table 2). Some claim this difference exists because men and women tend to gamble for different reasons and in different activities. Men were more likely to play VLTs (7% versus 5%) and bet on horse racing (5% versus 3%); women were more likely to play bingo (12% versus 5%) (Table 1). The cultural image of a gambler may also play a role. The archetypal gambler portrayed in movies, fiction and music has always been male (Castellani 2001).

At-risk and problem gamblers were also, on average, younger than non-problem gamblers (40 versus 45). While gamblers with less than postsecondary schooling were significantly more likely than those with more education to be at-risk or problem gamblers (8% and 5% respectively), low-income gamblers (under $20,000) were not significantly different from higher-income gamblers ($20,000 or more).[6]

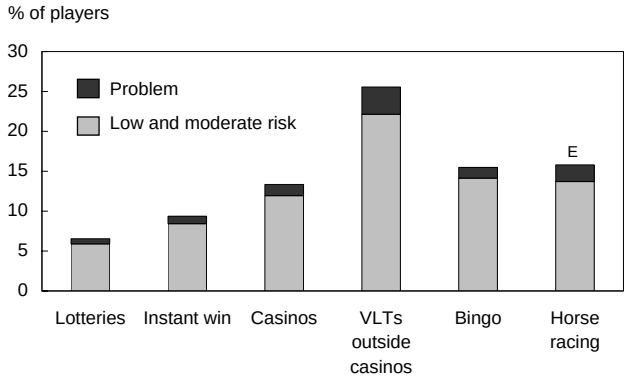
Off-reserve Aboriginal gamblers were significantly more likely to be at risk than non-Aboriginal gamblers—18% versus 6%.[7] The factors associated with problem gambling raise concerns for the Aboriginal population. "First Nations communities in Canada likely will be at greater risk, as many of their communities experience high rates of substance abuse and have lower than average levels of income and education." (Kelley 2001, p. 6).

Manitoba and Saskatchewan had considerably higher proportions of at-risk gamblers (9.4% and 9.3% respectively) than other provinces. Contributing factors may include the highest VLT participation rates in the country; the highest casino participation rates along with Ontario (Table 1); and above average Aboriginal populations.[8]

Almost one in three daily gamblers were either at risk (30%) or already problem gamblers (6%). Those who gambled two to six times a week were also significantly more likely to be at risk or to have a problem (14%).

Finally, at-risk and problem gambling rates varied considerably by the type of game played, suggesting that some games are more alluring than others (Chart B). For example, one in four of those whose playing included VLTs were at risk or already problem gamblers, confirming the much-reported notion that VLTs

Chart B: One-quarter of VLT players were at risk or had a problem.



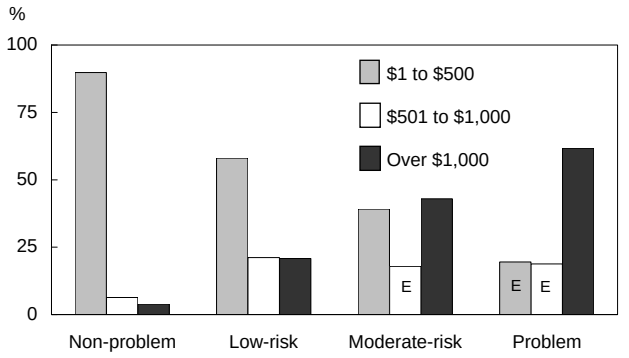
Source: Canadian Community Health Survey 1.2, 2002

are the 'crack cocaine' of gambling. By contrast, buyers of lottery tickets, the game of choice for 16 million people, had the smallest proportion of at-risk and problem players (7%).[9]

Gambling takes money

Inevitably, frequent gambling lightens the wallet. Problem gamblers were by far the most likely to spend more than $1,000 per year—62%, compared with 4% of non-problem gamblers (Chart C).

Chart C: Six in 10 problem gamblers spent over $1,000 per year.



Source: Canadian Community Health Survey 1.2, 2002

Moderate-risk gamblers at 43% were next highest, followed by low-risk gamblers at 21%. The vast majority of non-problem gamblers (90%) spent $500 or less per year, with 33% spending only $50 or less.

Overall, 6% of gamblers spent over $1,000, the same proportion reported by one-person households in the Survey of Household Spending (SHS). Although it is not possible to identify problem gamblers from the SHS, exact gambling expenditures are available. The median value for those who spent more than $1,000 was $2,280 for men and $1,900 for women in 2001.[10]

Constant gambling and excessive spending can take its toll in many facets of life—particularly personal and family finances. The majority of problem gamblers (62%) reported that they always or most of the time spent more money on gambling than they wanted to (Table 3). Only 3% of non-problem gamblers reported that they only sometimes spent more than they had planned (data not shown). Furthermore, 85% of problem gamblers said they sometimes or most of the time bet more than they could afford to lose, compared with 47% of moderate-risk and 14% of low-risk gamblers. Without doubt, constant out-of-control and unaffordable spending can lead to debt and unpaid bills, thus adding further emotional and financial strain. Indeed, among problem gamblers, 53% said their gambling habits sometimes caused financial problems, and another 17% reported that they always or almost always did. Finally, 39% of problem gamblers claimed that they sometimes borrowed money or sold things in order to continue gambling, a desperate action that risks further financial hardship.

Table 3: Money issues related to gambling

	Type of gambler		
	Low-risk	Moderate-risk	Problem
	%		
Spent more than wanted to			
Sometimes	52	64	30
Always/most of time	5[E]	24	62
Bet more than could afford to lose			
Sometimes	14	44	47
Always/most of time	0	3[E]	38
Gambling caused financial problems			
Sometimes	F	22	53
Always/most of time	0	F	17[E]
Borrowed money or sold things to gamble			
Sometimes	5[E]	18	39
Always/most of time	F	F	F

Source: Canadian Community Health Survey 1.2, 2002
Note: The responses do not add up to 100 because the 'never' category is not shown.

Problem gamblers burdened with stress and health issues

Relentless preoccupation with gambling consumes both time and money, and can also have a negative effect on physical and mental health. Problem gamblers were twice as likely (22% versus 11%) to report poor or fair health compared with non-problem gamblers (Table 4). The likelihood of alcohol dependence increased as

Table 4: Health, social and stress issues among gamblers

Within past 12 months (unless otherwise stated)	All gamblers	Non-problem	Low-risk	Moderate-risk	Problem
			'000		
Total	**18,887**	**17,699**	**697**	**373**	**118**
			%		
Fair or poor health	11	11	10	14	22*[E]
Alcohol dependence[†]	3	2	7*	12*	15*
Family problems from gambling	1	F	4*[E]	16*	49*
Gambling interfered with ability to do job**	...	...	...	57	55
High or extreme stress	24	23	27	21	42*
High distress level in past month[†]	10	9	16*	17*	29*
Had ever had clinical depression	11	11	12	15	24*[E]

Source: Canadian Community Health Survey 1.2, 2002
* *Statistically significant difference from the non-problem group (.05 level).*
** *Of those employed, which included roughly 90% of all gamblers aged 25 to 55.*
[†] *See* Data source and definitions *for full explanation of derived variables.*

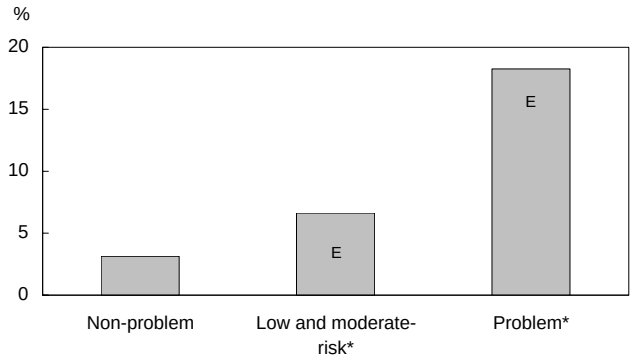
the at-risk gambling level increased. Only 2% of non-problem gamblers were afflicted with alcohol dependence, compared with 7% of low-risk and 15% of problem gamblers. Although methodology and definitions vary, other studies have also found a correlation (co-morbidity) between alcohol dependence and pathological gambling (Kidman 2002).

Obsessive gambling can also lead to social problems. Half of all problem gamblers reported that their gambling caused relationship problems with their family or friends. Such problems were also reported by 16% of moderate-risk gamblers, but by virtually no non-problem gamblers. Furthermore, more than half of employed moderate-risk and problem gamblers reported that their gambling had previously interfered with their ability to do their job.

Stress is an inevitable outcome of the financial and social pressures created by problem gambling. Although gambling may not be the sole cause, 42% of problem gamblers reported a high or extreme level of stress in their life, compared with 23% of non-problem gamblers. Also, based on a number of psychological distress questions, 29% of problem gamblers were considered highly distressed, compared with just 9% of non-problem gamblers.

Persistent stress can be related to depression. The likelihood of ever having had a major clinical depression was significantly higher among problem gamblers.

Chart D: Almost one in five problem gamblers contemplated suicide in past year.



Source: Canadian Community Health Survey 1.2, 2002
** Statistically significant difference from non-problem group (.05 level).*

Only 11% of non-problem gamblers had ever had clinical depression during their life, compared with 24% of problem gamblers. Major depression is a key risk factor for suicide (Newman and Thompson 2003). CCHS 1.2 found that a significantly higher proportion of problem gamblers than non-problem gamblers had contemplated suicide in the past year (18% versus 3%) (Chart D).

"In light of the high rates of anxiety and depression, it is no wonder that pathological gamblers have very high rates of suicidal ideation" (Lesieur 1998, p. 158). Some studies have pointed out, however, that although mental disorders, pathological gambling and suicide attempts are associated, cross-sectional data do not permit an examination of cause and effect (Newman and Thompson 2003). However, causation aside, finding that one in five problem gamblers considered suicide in 2002 is startling and worrisome.[11]

Problem gamblers know they're in trouble

In 2002, more than one-third of a million Canadians (2% of all gamblers) at least occasionally thought that they might have a gambling problem (Table 5). Four in 10 problem gamblers almost always felt they had a problem. In some ways it is surprising that 15% of problem gamblers did *not* think they had a problem.

Table 5: Indications of difficulty with gambling

	Low-risk	Moderate-risk	Problem
		'000	
Difficulties in past 12 months	**697**	**373**	**118**
		%	
Felt they might have a gambling problem			
Sometimes	10[E]	46	47
Always/most of time	F	3[E]	38
Wanted to stop but thought they could not			
Sometimes	5[E]	22	36
Always/most of time	F	5[E]	27[E]
Tried to quit, but unable			
Sometimes	4[E]	21	30
Always/most of time	F	5[E]	25[E]

Source: Canadian Community Health Survey 1.2, 2002
Note: The responses do not add to 100 because the 'never' category is not shown.

The insidiousness of excess gambling is revealed by the 27% of moderate-risk and 64% of problem gamblers who had wanted to stop gambling in the previous year, but believed they could not. Furthermore, a strikingly high proportion of moderate-risk (26%) and problem gamblers (56%) had tried to quit, but could not. It is not known what means they tried nor why they failed.

Conclusion

The surge in the gambling industry began in the 1990s when provincial governments began legalizing permanent casinos and VLTs. In 2002, 76% of Canadians reported gambling in the previous year—4 in 10 on a weekly basis. The continuous expansion of the industry has led to much debate. In 2000, the Canadian Public Health Association adopted the position that the expansion of gambling is a public health issue and that work must be done towards "minimizing gambling's negative impacts while balancing its potential benefits" (Korn and Skinner 2000). However, estimating the health and socio-economic costs and benefits of gambling is difficult, and no study has yet done it (Wynne and Shaffer 2003).

CCHS 1.2 adds new information on the health and social costs associated with gambling. It identified 700,000 low-risk, 370,000 moderate-risk, and 120,000 problem gamblers—5% of the total population and 6% of all gamblers. Those significantly more likely to be in the at-risk or problem categories were men, Aboriginal persons, people with less education, and VLT and very frequent players.

The consequences of being an at-risk or problem gambler included higher rates of financial and relationship problems. Problem gamblers in particular suffered elevated levels of alcohol dependence, stress, emotional distress, and past episodes of depression. However, the vast majority of problem gamblers recognized they had a problem, and most (56%) had tried—unsuccessfully—to quit in the previous year. The many problems associated with gambling, including the inability to stop may partly account for the 18% of problem gamblers who contemplated suicide in the previous year. Ultimately, suicide in an irreversible consequence with immeasurable cost, and contemplating it is certainly a cry for help.

Notes

1 Gambling revenue as a percentage of total government revenue increased from 1.9% in 1992 to 5.1% in 2001 (Marshall 2003).

2 Research is ongoing into the root cause of problem or pathological gambling—that is, whether it is biological, genetic or behavioural. Although this article does not address the reasons for problem gambling, they are important in determining successful treatments.

3 Similar to alcohol consumption, frequency and expenditure rates for gambling are regularly under-reported.

4 Instant win tickets include Keno, Pick 3, Encore, Banco, and Extra. Lottery tickets include 6/49, Super 7, Sports Select, and Pro-Line.

5 The provincial differences mentioned in this paragraph are all statistically significant at the .05 level, as are the differences by sex in the types of games played that are listed in the next paragraph.

6 Although at-risk and problem-gambling rates were quite similar for the various income groups, gambling participation rates differed. For example, 69% of individuals with less than $20,000 gambled in 2002, compared with 82% of those with $20,000 or more.

7 These figures exclude the on-reserve Aboriginal population.

8 Overall, the off-reserve Aboriginal population represents 1% of the population, but in Manitoba it represents 6%, and in Saskatchewan 5%.

9 A more precise way to measure the addictive tendencies of each activity would be to look at those who played one activity exclusively. In 2002, this was the case for 40% of gamblers overall, 42% of non-problem gamblers, and 4% of problem gamblers. However, even with this bias, non-problem gamblers made up 99% of those who bought only lottery tickets, compared with 90% of those who played only VLTs.

10 For more information on gambling expenditure by type of gambling activity from the Survey of Household Spending, see Marshall (2003).

11 Due to community pressure, as of June 2003, coroners across the country began coding suicides due to gambling. Although most provinces now keep track of gambling-related suicides, their methodologies and measurement differ, thus making comparability difficult (Bailey 2003).

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Health care professionals

Diane Galarneau

HEALTH 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).

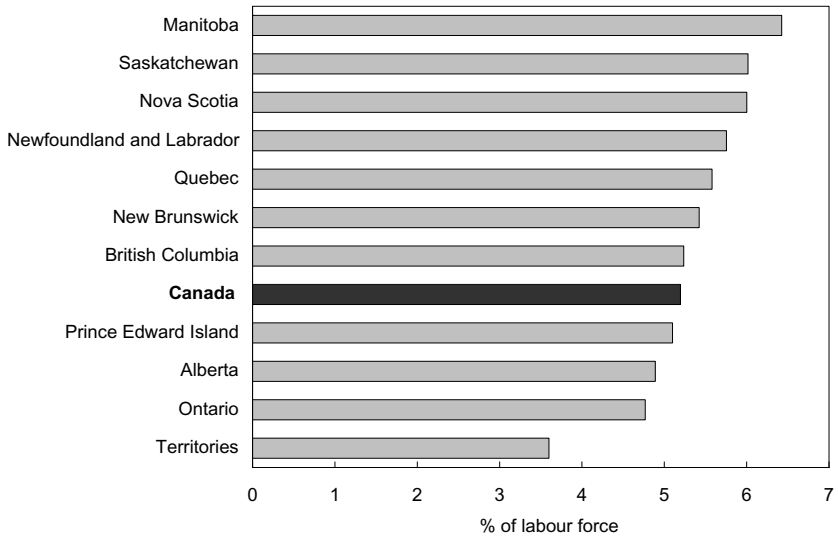
Human resources are also an important concern for the health care system. Whenever nurses and physicians are mentioned, the words 'shortage' and 'waiting list' leap to mind. In the early 1990s, efforts were made to control the growth in the number of physicians to avoid a surplus. Now, however, more 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).[1] 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 1991	Women 2001	Average age 1991	Average age 2001
	'000		%	%			
Non-health workers	**13,639,100**	**15,045,900**	**10.3**	**43.6**	**45.2**	**36.9**	**38.7**
Professionals	**1,511,300**	**2,062,400**	**36.5**	**45.2**	**48.1**	**39.1**	**40.7**
Health workers	**719,300**	**824,600**	**14.6**	**79.1**	**79.3**	**38.3**	**41.1**
Professionals	**430,600**	**467,600**	**8.6**	**79.4**	**78.2**	**39.5**	**42.8**
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
Technical personnel	**119,300**	**145,300**	**21.8**	**70.4**	**72.2**	**35.9**	**38.6**
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
Support personnel	**169,400**	**211,700**	**24.9**	**84.4**	**86.7**	**36.8**	**39.0**
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 2: Comparison of health and non-health workers

	Total	Non-health	Health	Health professionals	Technical	Support
			'000			
Number						
1991	14,358	13,639	719	431	119	169
2001	15,870	15,046	825	468	145	212
Women			%			
1991	45.4	43.6	79.1	79.4	70.4	84.4
2001	47.0	45.2	79.3	78.2	72.2	86.7
Average age						
1991	37.0	36.9	38.3	39.5	35.9	36.8
2001	38.8	38.7	41.1	42.8	38.6	39.0
Recent immigrants			%			
1991	4.5	4.5	4.2	3.5	4.7	5.5
2001	6.0	6.1	4.7	3.8	4.7	6.7
Unemployment rate						
1991	8.2	8.5	3.2	2.2	3.8	5.4
2001	5.4	5.6	1.9	1.2	2.4	3.1
Full-year, full-time						
1991	51.8	51.7	52.8	54.3	57.6	45.5
2001	54.2	54.1	57.1	59.5	59.0	50.6
Full-year, mostly part time						
1991	19.6	19.0	29.6	29.9	21.4	34.8
2001	21.7	21.4	27.6	25.5	24.2	34.4
Self-employed						
1991	9.2	9.2	9.6	13.9	6.5	0.8
2001	11.0	11.0	12.0	16.8	12.5	1.0
Average hours						
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

Source: Census of Canada

The prospect of a labour shortage in some health occupations is causing government officials to advocate policies of greater openness toward foreign workers. However, in 2001, the proportion of recent immigrants (those who arrived in Canada during the previous 10 years) was little changed from 1991 among health professionals (remaining below 4%), whereas the proportion rose by just over one-third (from 4.5% to 6.1%) among non-health workers (Table 2). The difference may be the result of the difficulty many professionals face in getting their credentials recognized. However, the proportion of immigrants in the technical and support categories rose slightly.

Work intensity generally increased for health workers from 1991 to 2001. The proportion employed full year, full time increased more than for other workers, rising 4.3 percentage points over the decade, compared with 2.4 points for other workers. Health professionals and support personnel led the way with 5 points.

By contrast, the proportion of health workers who worked mostly part time decreased by 2 points. Compared with other workers, those in health occupations, whether professional, technical or support, more often work part time. The greater prevalence of part-time may be related to the difficulty nurses experience in obtaining full-time positions as well as to the large proportion of women in health occupations (Chart B).[2]

Coupled with high work intensity is a low unemployment rate. The unemployment rate for health workers in 2001 was considerably lower than for other workers (1.9% compared with 5.6%). Professionals were the least likely to be unemployed, at only 1.2%. Technical and support personnel also had relatively low rates (2.4% and 3.1% respectively).

In 2001, health workers averaged the same number of hours per week as the rest of the workforce (32.8). Professionals posted a slightly higher average (34.2). By comparison, in the non-health area, senior managers worked 42.7 hours and other professionals 34.7 hours.

Income from employment

Overall, average annual employment income grew 7.2% in real terms between 1990 and 2000 (Table 3).[3] For health workers, the increase was 8.9%, compared with 7.0% for non-health workers. Professionals experienced the greatest increase (13.8%), followed by support personnel (8.6%), with technical personnel trailing behind at 0.6%.

Median employment income increased more modestly (3.3% overall) because of large increases registered in the upper income groups. Health workers again stood out. Professionals posted the largest gain (15.1%), support personnel showed a modest gain of 7.9%, and technical personnel a drop of 0.2%.

Table 3: Work intensity and annual income of health workers

	Total	Non-health	Health	Health professionals	Technical personnel	Support personnel
All workers						
Average hours						
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
Average earnings				$		
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
Median earnings				$		
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
Full year, full time						
Average hours						
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
Average earnings				$		
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
Median earnings				$		
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.[4]

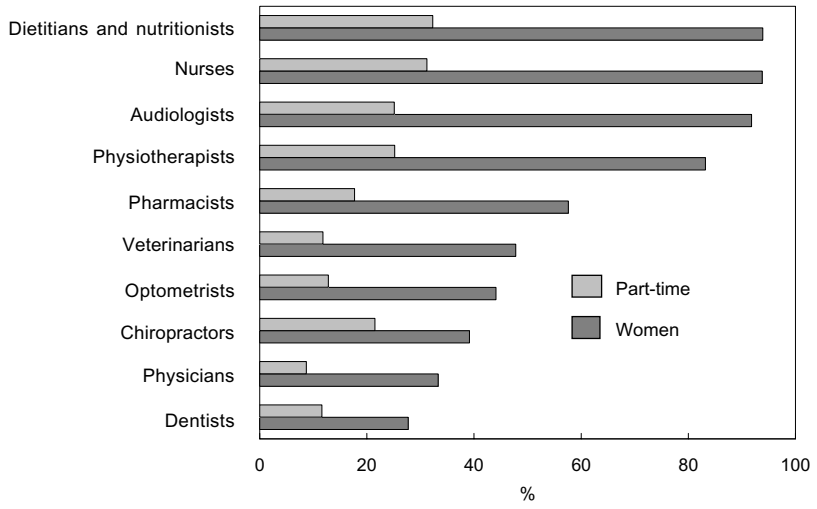
Among professionals, the increase seems to reflect in part their increased work intensity and the rise in their average age. However, these general observations conceal differences that appear when health occupations are examined separately, the two most important in numerical terms being nurses and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

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

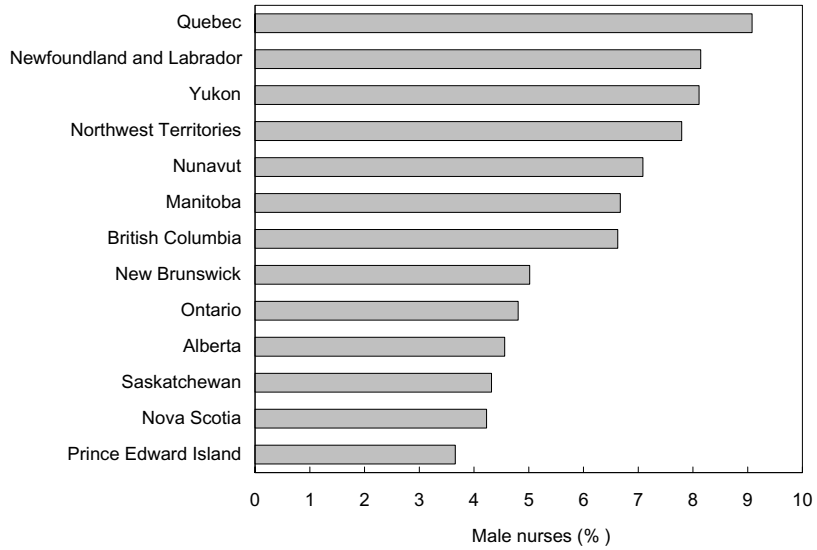
Exacerbating the situation, the number of licensed practical nurses decreased by 11% between 1991 and 2001. The decline affected just about every part of Canada, with British Columbia, Ontario and Alberta having the lowest overall ratio in 2001.

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 respectively (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.

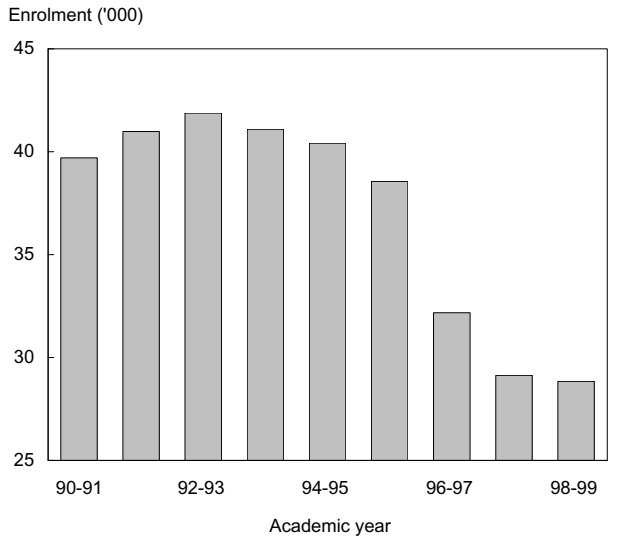
It has been estimated that the profession would lose more than 64,000 registered nurses between 2001 and 2006 because of retirement or premature death (CIHI 2003a).[7] This number represented

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

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%.[8] 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.

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

Table 4: Nurses per 10,000 inhabitants

	Registered nurses			Registered and licensed practical nurses	
	Census		CIHI	Census	
	1991	2001	2001	1991	2001
Canada	**93.3**	**82.5**	**74.1**	**113.2**	**98.4**
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
	$	%	%		$	%	%	
Non-health professionals	**41,500**	**-2.5**	**34.7**	**3.0**	**50,000**	**-2.1**	**43.2**	**3.1**
Health professionals	**42,000**	**15.1**	**34.2**	**5.2**	**48,800**	**8.4**	**42.7**	**0.9**
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%).[9] Licensed practical nurses also saw significant growth in their earnings (11%).

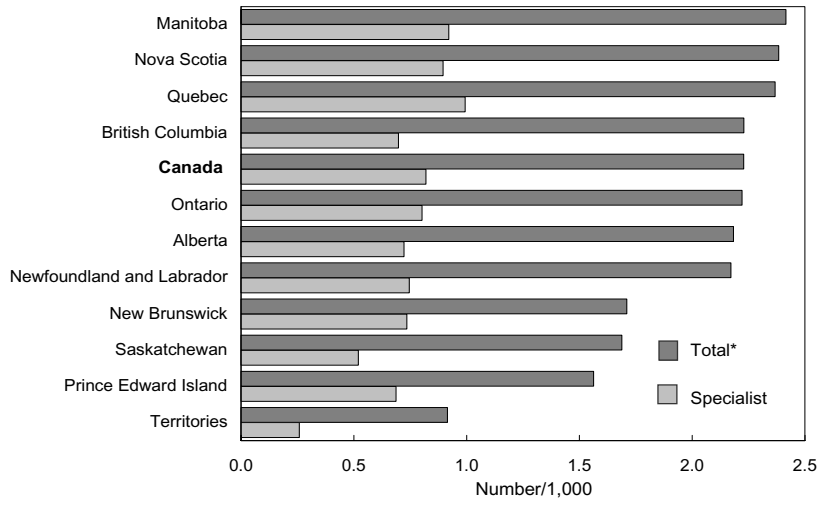
Full-year, full-time registered nurses had the largest gain in median earnings among professionals (8.0%). Because of their large proportion, this increase was a major factor in the 8.4% rise for all health professionals between 1990 and 2000. Licensed practical nurses had a modest 2.7% increase. The 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 practitioners 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).[10]

Canada had 2.2 physicians per 1,000 population in 2001, well below the 2.9 average for OECD countries (OECD 2003).[11] 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

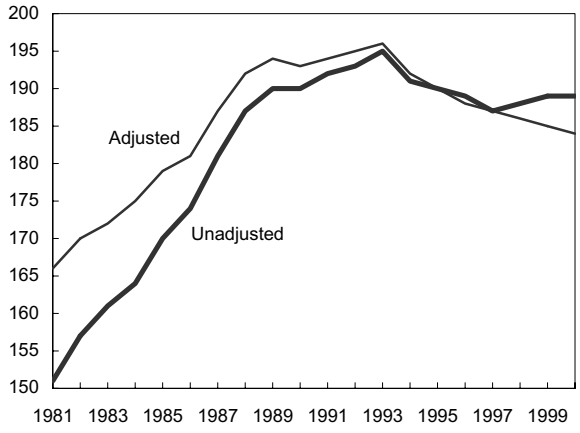
General practitioners and specialists have the highest average age among professionals—for several reasons (Table 1). In general, physicians retire relatively late, as confirmed by the high proportion who are 55 or older. In addition, enrolment in faculties of medicine has been falling and years of post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

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.

Table 6: Self-employment among health professionals

	Both sexes		Men		Women	
	1991	2001	1991	2001	1991	2001
			%			
Non-health professionals	**9.4**	**12.6**	**12.1**	**16.0**	**6.2**	**8.9**
Health professionals	**13.9**	**16.8**	**50.7**	**49.6**	**4.3**	**7.6**
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

Work intensity and annual earnings

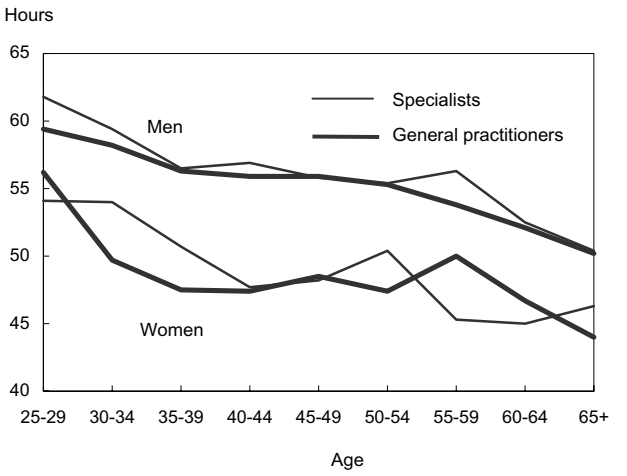
Average hours worked by specialists and general practitioners declined appreciably between 1991 and 2001 (-6% and -3% respectively) (Table 5). In addition, fewer worked full year, full time—specialists went from about 68% in 1991 to 61% in 2001, general practitioners from 67% to 65%.

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 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.

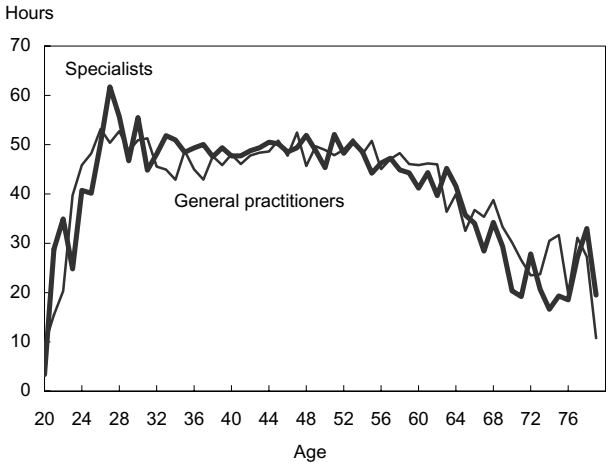
The high average age of physicians, combined with the influx of women into these occupations, accentuates the perception of a shortage, since women and older physicians work fewer hours than male physicians under age 55. Other factors, such as rules designed to reduce the number of medical procedures 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

Chart H: After age 55, doctors cut back on their 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 in women entering the profession and fewer self-employed would help explain the opposite trend.[13] Increased operating expenses[14] 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

			Nurses	
	Specialists	General practitioners	Head nurses, supervisors and registered nurses	Licensed practical nurses
			$	
Canada	**125,700**	**104,100**	**46,500**	**31,200**
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: Unadjusted	Ratio of women to men: Adjusted for hours of work
	$		%	
Non-health professionals	**55,300**	**44,400**	**80**	**83**
Health professionals	**70,000**	**45,000**	**64**	**72**
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 occupationnal 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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