

# Dental insurance and use of dental services

Wayne J. Millar and David Locker

## Abstract

### Objectives

This article examines socioeconomic differences in insurance for dental services among Canadians aged 15 or older and factors associated with the use of dental services.

### Data source

The data on dental insurance coverage and use of dental services are from the cross-sectional file of Statistics Canada's 1996/97 National Population Health Survey. The sample size of respondents aged 15 or older was 70,884.

### Analytical techniques

Logistic regression analysis was used to model variables related to dental insurance coverage and to dental visits in the past year. A weighted bootstrap resampling procedure was used to derive variance estimates.

### Main results

In 1996/97, 53% of the population aged 15 or older reported having dental insurance, and 59% said they had visited a dentist in the past year. But even when they had insurance, individuals with low incomes and low educational attainment had much lower odds of visiting a dentist than those with higher incomes and more education.

### Key words

dental care, dental health services, health surveys, socioeconomic status

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Dental disease may be one of the most common health problems in the world today. Yet because it is generally neither dramatic nor life-threatening, its public health impact has not been fully appreciated.<sup>1</sup> Recent research suggests that dental health can affect the functional, psychological and social dimensions of an individual's overall health status.<sup>2</sup> Dental problems are also associated with a substantial reduction of daily activity, with loss of work and school days.<sup>3</sup>

Because dental health is an important part of overall health status, it is important that all Canadians receive adequate dental care. Oral diseases and dental problems, in fact, are largely preventable. Regular check-ups (at least one visit within a one- or two-year period) are important for everyone. Even individuals with no natural teeth can benefit from seeing a dentist regularly to follow up and maintain dental prostheses, or to screen for oropharyngeal cancer or non-cancerous lesions.<sup>4</sup>

Dental visits are largely determined by the ability to pay for services. Per person visits tend to increase with household income because dental care, especially

preventive care, is elective. Research in Great Britain, Australia and the United States has provided evidence that individuals with lower socioeconomic status use preventive dental services less often.<sup>5-7</sup> Further, numerous studies have documented that members of lower socioeconomic groups have poorer dental health than individuals belonging to more affluent groups.<sup>5,8,9</sup>

In Canada, several reports have noted disparities in dental care utilization by socioeconomic status.<sup>8</sup> A Québec analysis found that income and education

were among the factors most strongly related to the use of dental services.<sup>5</sup> A study of older Ontario adults found that the likelihood of visiting a dentist was highly associated with dental insurance.<sup>12</sup> Income was also a factor in dental visits; the lowest rates were observed among low income persons without insurance.<sup>12</sup>

This article uses data from the 1996/97 National Population Health Survey (NPHS) to examine the extent to which Canadians are covered by dental insurance, and how such coverage affects their use

## Methods

### Data sources

This article is based on data from Statistics Canada's National Population Health Survey (NPHS). The NPHS, which began in 1994/95, collects information about the health of the Canadian population every two years.<sup>10,11</sup> It covers household and institutional residents in all provinces and territories, except persons living on Indian reserves, on Canadian Forces bases, and in some remote areas. The NPHS has both a longitudinal and a cross-sectional component. Respondents who are part of the longitudinal component will be followed for up to 20 years.

The 1996/97 cross-sectional sample is made up of longitudinal respondents and respondents who were selected as part of supplemental samples, or buy-ins, in three provinces. The additional respondents were chosen with random digit dialing (RDD) and were included for cross-sectional purposes only.

Individual data are organized into two files: General and Health. Socio-demographic and some health information was obtained for each member of participating households. These data are found in the General file. Additional in-depth health information was collected for one randomly selected household member. The in-depth health information, as well as the information on the General file pertaining to that individual, is found in the Health file.

In households belonging to the cross-sectional buy-in component, one knowledgeable person provided the socio-demographic and health information about all household members for the General file. As well, one household member, not necessarily the same person, was randomly selected to provide in-depth health information about himself or herself for the Health file.

Among individuals in the longitudinal component, the person providing in-depth health information about himself or herself for the

Health file was the randomly selected person for that household in cycle 1 (1994/95) and was usually the person who provided information on all household members for the General file in cycle 2 (1996/97).

The 1996/97 cross-sectional response rates for the Health file were 93.1% for the continuing longitudinal component and 75.8% for the RDD component, yielding an overall response rate of 79.0%. Information in the Health file is available for 81,804 randomly selected respondents.

This analysis is based on the sample of 70,884 Canadians who were aged 15 or older. It uses cross-sectional data from cycle 2 of the NPHS to examine dental insurance coverage and use of dental services. The data analyzed here pertain to the household population in the 10 provinces (Appendix Table A).

Supplemental information was obtained from the 1990 Health Promotion Survey, which was conducted for Health Canada.

### Analytical techniques

Unadjusted and adjusted odds ratios were calculated to investigate the association between socioeconomic characteristics, dental insurance, and dental visits in the past year.

All estimates based on NPHS data were weighted to represent the Canadian population at the date of the survey. The 1996/97 population of Canada aged 15 or older (both sexes) was used as the reference population for direct standardization of rates. A weighted bootstrap resampling procedure was used to calculate coefficients of variation for totals and rates.<sup>13,14</sup> This technique also served to estimate standard errors used in the calculations of the confidence intervals for the odds ratios. Results at the 0.05 level were considered statistically significant.

of dental services (see *Methods, Limitations and Definitions*).

### Half covered by dental insurance

The cost of dental care is generally the responsibility of the individual. Many may benefit from coverage provided through private dental care plans, which are often available through employment. Others may be eligible for coverage under one of the provincial plans. Most provinces provide coverage for children, seniors and social assistance recipients.<sup>15</sup> A few provinces (British Columbia, Québec and Newfoundland) have special preventive dentistry programs for children.<sup>16</sup>

According to the 1996/97 NPHS, about half of Canadians aged 15 or older (53%) reported having dental insurance (Table 1). Coverage tended to be highest among middle-aged people. While just over

half of individuals aged 15 to 24 (54%) said they had dental insurance, the rate rose to 64% for those aged 35 to 44. At older ages, the rate dropped, and

Table 1  
Household population aged 15 or older with dental insurance, by selected socioeconomic characteristics, Canada excluding territories, 1996/97

	Total population	Population with dental insurance	Age-adjusted %
	'000	'000	%
<b>Both sexes</b>	<b>23,444</b>	<b>12,318</b>	<b>53</b>
Men	11,519	6,119	53
Women	11,925	6,199	53
<b>Age group</b>			
15-24	3,983	2,147	54
25-34	4,472	2,620	59
35-44	5,238	3,362	64
45-54	3,771	2,299	61
55-64	2,565	1,159	45
65 or older	3,416	730	21
<b>Province</b>			
Newfoundland	449	178	39
Prince Edward Island	107	51	48
Nova Scotia	738	357	49
New Brunswick	607	312	51
Québec	5,862	2,283	39
Ontario	8,879	5,305	60
Manitoba	857	470	56
Saskatchewan	752	363	50
Alberta	2,121	1,222	57
British Columbia	3,072	1,777	58
<b>Residence</b>			
Rural	4,047	1,863	46
Urban	19,388	10,448	54
Missing	10	7	--
<b>Household income</b>			
Lowest/Lower-middle	3,051	680	23
Middle	5,865	2,396	42
Upper-middle	7,655	5,082	64
Highest	2,966	2,213	70
Missing	3,906	1,948	51
<b>Educational attainment</b>			
Less than secondary graduation	6,377	2,488	40
Secondary graduation	3,909	2,094	53
Some postsecondary	5,398	2,933	53
Postsecondary graduation	7,595	4,734	59
Missing	165	69	49
<b>Employment status</b>			
Currently working	13,816	8,819	60
Not currently working†	8,234	3,167	41
Worked in last 12 months, current work status unknown	127	63	48
Missing	1,268	269	61

**Data source:** 1996/97 National Population Health Survey, cross-sectional sample, Health file

**Note:** Detail may not add to totals because of rounding.

† Not currently working, but had a job, or did not work during last 12 months

-- Amount too small to provide reliable estimate

### Limitations

In an effort to be as inclusive as possible, the National Population Health Survey (NPHS) referred to "insurance" rather than "dental plan coverage." However, dental plan coverage is not actually a form of insurance, but an economic benefit that prepays some or all of an individual's dental care costs.

As well, the estimates of dental insurance reflect the perception of the individual. It is possible that some respondents may have misinterpreted the question about dental insurance coverage. For example, when asked if they currently had "insurance that covers all or part of your dental expenses," some may not have been aware that they had coverage under a spouse's or parent's plan, or under a school or sports-affiliated plan. It is also possible that some respondents who reported having dental insurance coverage received that coverage under a social assistance plan, which would cover basic emergency dental care only. Others may not have considered dental services provided under provincial social assistance programs as dental insurance.

The NPHS data do not indicate the scope or type of coverage for dental services. There is no information about the proportion of the cost that individuals would be expected to pay, although such an expense could influence their use of dental services.

The NPHS did not ask respondents if they had their own natural teeth. Therefore, it is not possible to identify the dentate and edentate populations using NPHS data. The 1990 Health Promotion Survey, however, did ask respondents about the number of teeth; those who had no natural teeth were classified as edentate.<sup>17</sup>

only one-fifth of the 65-or-older age group (21%) was covered. The unadjusted odds of having dental insurance were significantly higher for all age groups compared with the 65-or-older group (Appendix Table B).

The high coverage among the middle age groups may reflect benefits that are often offered through employment. In fact, among those who were working, the rate of coverage was 60%, compared with 41% among those who were not working.

Dental insurance coverage was strongly associated with household income. At the highest income level the rate was about triple that for the lowest (70% compared with 23%). The rate of coverage also rose with level of education, but the incremental

change was less pronounced than that for household income.

Of course, age, employment status, income and education all tend to be related. After sex, age, province, residence, household income and employment status were taken into account, the odds that postsecondary graduates would have dental insurance coverage were higher than those for people with less than secondary graduation (Table 2). Similarly, each of the other variables was significantly related to having dental insurance. For example, the odds that people in the highest income group would report having insurance were more than seven times the odds of those in the lowest. As well, 35- to 44-year-olds had four times the odds

## Definitions

National Population Health Survey (NPHS) respondents were asked, "Do you have insurance that covers all or part of your dental expenses?" Dental insurance status was dichotomized as insured or not insured. All information about dental insurance coverage is based on non-proxy responses.

Respondents were asked, "When was the last time that you went to a dentist?" Those who said "less than one year ago" were asked, "Why do you go to the dentist?" Interviewers did not read the following list but marked all that applied: to make sure everything is okay; check-up covered by insurance; catch problems early; for good dental health; to take care of teeth/gums/dentures; for cleaning/fluoride/maintenance; to get a filling/extraction; to check braces; other (specify). Respondents could give more than one reason.

Individuals who had not visited a dentist in the past year were asked when they had last done so. Those who had not visited a dentist in the past three years were asked, "Why haven't you been to a dentist in the past three years?" Again, interviewers did not read the list, but marked the appropriate responses: have not gotten around to it; respondent did not think it was necessary; dentist did not think it was necessary; personal or family responsibilities; not available at time required; not available at all in the area; waiting time was too long; transportation problems; language problem; cost; did not know where to go/uninformed; fear (painful, embarrassing, find something wrong, etc.); wears dentures; and other (specify).

Six age groups were established for this analysis: 15 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, and 65 or older.

*Residence* was classified as either rural or urban.

Four *household income* levels were defined by taking into account both household income and the number of people in the household:

Income group	Number of household members	Household income
Lowest/Lower-middle	1 or 2	Less than \$14,999
	3 or 4	Less than \$19,999
	5 or more	Less than \$29,999
Middle	1 or 2	\$15,000 to \$29,999
	3 or 4	\$20,000 to \$39,999
	5 or more	\$30,000 to \$59,999
Upper-middle	1 or 2	\$30,000 to \$59,999
	3 or 4	\$40,000 to \$79,999
	5 or more	\$60,000 to \$79,999
Highest	1 or 2	\$60,000 and over
	3 or 4	\$80,000 and over
	5 or more	\$80,000 and over

*Educational attainment* was grouped into four categories: less than secondary graduation; secondary graduation; some postsecondary; and postsecondary graduation.

*Employment status* was categorized as currently working, not currently working (that is, had a job but not currently working, or did not work in last 12 months), or worked in last 12 months, but current work status unknown.

of being insured as did seniors. The odds of being insured were also higher for women than men, for urban than rural residents, and for workers than for people who were not working.

**Table 2**  
**Adjusted odds ratios for dental insurance coverage, household population aged 15 or older, Canada excluding territories, 1996/97**

	Adjusted odds ratio	95% confidence interval
<b>Sex</b>		
Men	0.91*	0.84, 0.97
Women†	1.00	...
<b>Age group</b>		
15-24	3.96*	3.41, 4.60
25-34	3.26*	2.80, 3.78
35-44	4.27*	3.73, 4.89
45-54	3.47*	3.02, 3.97
55-64	2.21*	1.91, 2.56
65 or older†	1.00	...
<b>Province</b>		
Newfoundland†	1.00	...
Prince Edward Island	1.29	0.98, 1.69
Nova Scotia	1.28	0.99, 1.67
New Brunswick	1.45*	1.11, 1.87
Québec	0.68*	0.55, 0.84
Ontario	1.86*	1.53, 2.25
Manitoba	1.57*	1.29, 1.92
Saskatchewan	1.25	0.98, 1.60
Alberta	1.65*	1.35, 2.02
British Columbia	1.52*	1.19, 1.95
<b>Residence</b>		
Rural†	1.00	...
Urban	1.29*	1.18, 1.42
<b>Household income</b>		
Lowest/Lower-middle†	1.00	...
Middle	2.33*	2.05, 2.65
Upper-middle	5.99*	5.24, 6.83
Highest	7.39*	6.26, 8.73
<b>Educational attainment</b>		
Less than secondary graduation†	1.00	...
Secondary graduation	1.06	0.95, 1.19
Some postsecondary	1.04	0.93, 1.15
Postsecondary graduation	1.16*	1.05, 1.30
<b>Employment status</b>		
Currently working	1.40*	1.28, 1.53
Not currently working‡	1.00	...
Worked in last 12 months, current work status unknown	1.06	0.67, 1.66

**Data source:** 1996/97 National Population Health Survey, cross-sectional sample, Health file

**Notes:** The multivariate analysis is based on 63,118 persons aged 15 or older who provided information on all variables in the model. A "missing" category for income was included in the model to maximize the sample size; however, its odds ratio is not shown.

† Reference category, for which odds ratio is 1.0

‡ Not currently working, but had a job, or did not work during last 12 months

\*  $p < 0.05$

... Not applicable

## Use of dental services

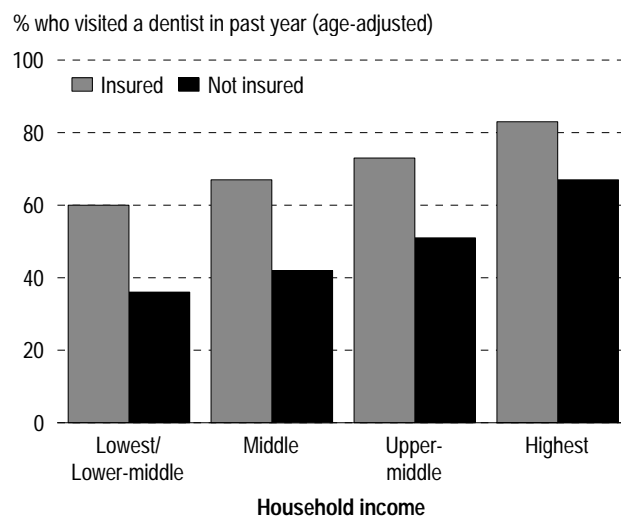
Almost 6 in 10 Canadians aged 15 or older (59%), or about 13.9 million people, said that they had visited a dentist in the year before their 1996/97 NPHS interview (Table 3, Appendix Table C). This was up from 47% in 1978/79.<sup>18,19</sup>

Women were more likely than men to have seen a dentist: 62% versus 56%. The proportion of the population who visited a dentist also varied by age. More than 60% of individuals aged 15 to 54 had visited a dentist, compared with 51% of 55- to 64-year-olds and 40% seniors.

There were large differences in dental visits by household income and educational attainment. While only 41% of people in the lowest income group had visited a dentist in the past year, 78% of individuals in the highest income group had done so. Similarly, 43% of those with less than secondary graduation reported a visit, compared with 70% of postsecondary graduates.

As might be expected, dental insurance was an important factor influencing dental visits. About three-quarters (73%) of individuals with insurance had visited a dentist in the past year, compared with

**Chart 1**  
**Household population aged 15 or older who visited a dentist in past year, by dental insurance status and household income, Canada excluding territories, 1996/97**



**Data source:** 1996/97 National Population Health Survey, cross-sectional sample, Health file

**Note:** Both the gradients of the insured and not insured are significant; the differences within an income group by insurance status are also significant.

Table 3  
Household population aged 15 or older who visited a dentist in past year, by selected socioeconomic characteristics, Canada excluding territories, 1996/97

	Total population	Population who visited a dentist in past year	Age-adjusted %
	'000	'000	%
<b>Both sexes</b>	<b>23,444</b>	<b>13,870</b>	<b>59</b>
Men	11,519	6,542	56
Women	11,925	7,328	62
<b>Age group</b>			
15-24	3,983	2,629	66
25-34	4,472	2,739	61
35-44	5,238	3,455	66
45-54	3,771	2,369	63
55-64	2,565	1,309	51
65 or older	3,416	1,370	40
<b>Province</b>			
Newfoundland	449	180	39
Prince Edward Island	107	60	57
Nova Scotia	738	403	55
New Brunswick	607	299	49
Québec	5,862	2,978	51
Ontario	8,879	6,028	68
Manitoba	857	489	58
Saskatchewan	752	339	46
Alberta	2,121	1,169	54
British Columbia	3,072	1,925	63
<b>Residence</b>			
Rural	4,047	2,145	53
Urban	19,388	11,718	60
Missing	10	7	--
<b>Household income</b>			
Lowest/Lower-middle	3,051	1,223	41
Middle	5,865	3,004	52
Upper-middle	7,655	5,021	65
Highest	2,966	2,306	78
Missing	3,906	2,316	60
<b>Educational attainment</b>			
Less than secondary graduation	6,376	2,911	43
Secondary graduation	3,909	2,267	58
Some postsecondary	5,398	3,352	62
Postsecondary graduation	7,595	5,272	70
Missing	165	68	42
<b>Employment status</b>			
Currently working	13,816	8,992	62
Not currently working†	8,234	4,330	53
Worked in last 12 months, current work status unknown	126	76	49
Missing	1,268	473	59
<b>Dental insurance</b>			
Insured	12,318	9,170	73
Not insured	10,318	4,539	45
Missing	808	162	14

**Data source:** 1996/97 National Population Health Survey, cross-sectional sample, Health file

**Note:** Detail may not add to totals because of rounding.

† Not currently working, but had a job, or did not work during last 12 months

-- Amount too small to provide reliable estimate

45% of the non-insured. But although insurance coverage reduced the gap, even if they were insured, persons in lower income groups were not as likely as those in the higher income groups to have seen a dentist (Chart 1).

After controlling for sex, age, province, residence, household income, educational attainment, and employment status, the odds that individuals with insurance would have visited a dentist in the past year were 2.69 times higher than those of the uninsured group (Table 4). Similarly, the odds that individuals with the highest household income had visited a dentist were 2.76 times those of individuals in the lowest income group. And postsecondary graduates' odds of having seen a dentist were close to twice those of people who had not graduated from high school. As well, the odds of visiting a dentist in the past year were slightly higher for urban than for rural residents.

Dental visits were also associated with sex and age. Women had significantly higher odds than men of going to the dentist. The odds of reporting a dental visit were higher among people in the age groups between 15 and 54, compared with those aged 65 or older.

Although employment status was significantly associated with dental insurance coverage, this was not the case for dental visits. When other factors were taken into account, the odds that individuals who were working would report seeking dental care in the past year were no greater than the odds for those who were not working. An American study has noted the same phenomenon.<sup>20</sup>

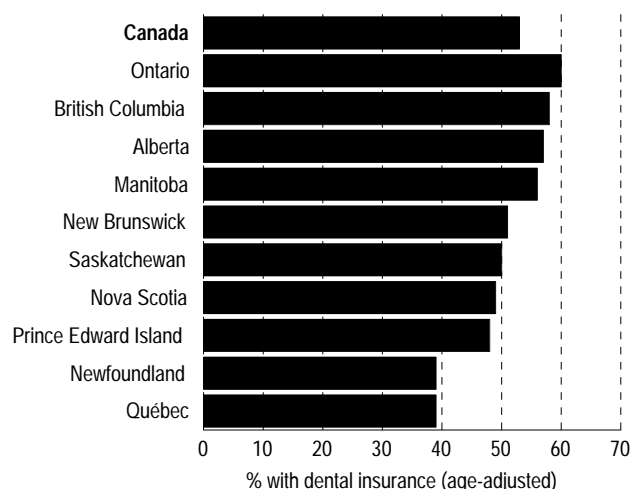
### Coverage, visits vary by province

Dental insurance coverage rates varied by province. The overall rate in Canada was 53%, and rates ranged from a high of 60% in Ontario to a low of 39% in Québec and Newfoundland (Chart 2). In comparison with Newfoundland, Ontario residents had almost twice the odds of reporting dental insurance (1.86), while their counterparts in Québec had significantly low odds (0.68) (Table 2). The odds of having dental insurance were also significantly high in New Brunswick, the Prairie provinces (except Saskatchewan) and British Columbia, compared with Newfoundland.

Newfoundland had the lowest provincial rate for dental visits, with only 39% reporting a visit in the past year (Chart 3). Ontario had the highest rate, at 68% (see *Population per dentist*). In fact, Ontario residents had 2.57 times the odds of visiting a dentist than their counterparts in Newfoundland (Table 4). When compared with Newfoundland, the odds of

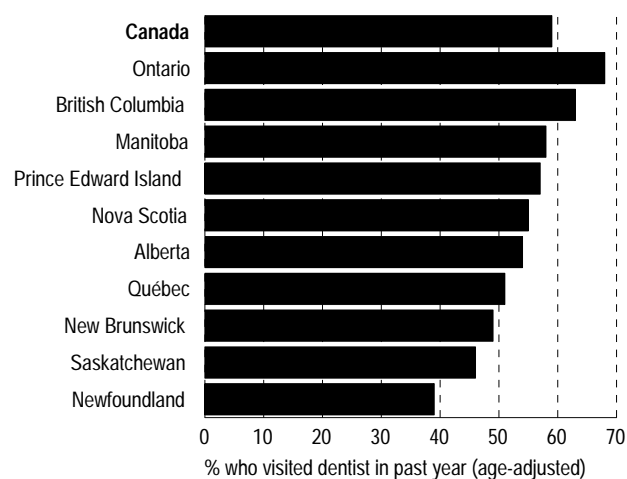
visiting a dentist were significantly high in all other provinces except New Brunswick and Saskatchewan.

Chart 2  
Household population aged 15 or older with dental insurance, Canada excluding territories, 1996/97



Data source: 1996/97 National Population Health Survey, cross-sectional sample, Health file

Chart 3  
Household population aged 15 or older who visited a dentist in past year, Canada excluding territories, 1996/97



Data source: 1996/97 National Population Health Survey, cross-sectional sample, Health file

Table 4  
Adjusted odds ratios for dental visit in past year, household population aged 15 or older, Canada excluding territories, 1996/97

	Adjusted odds ratio	95% confidence interval
<b>Sex</b>		
Men†	1.00	...
Women	1.33 *	1.24, 1.43
<b>Age group</b>		
15-24	2.02 *	1.75, 2.34
25-34	1.17 *	1.00, 1.36
35-44	1.45 *	1.24, 1.69
45-54	1.27 *	1.09, 1.47
55-64	0.98	0.83, 1.16
65 or older†	1.00	...
<b>Province</b>		
Newfoundland†	1.00	...
Prince Edward Island	1.85 *	1.46, 2.34
Nova Scotia	1.70 *	1.31, 2.20
New Brunswick	1.27	0.99, 1.63
Québec	1.47 *	1.18, 1.82
Ontario	2.57 *	2.15, 3.09
Manitoba	1.64 *	1.35, 2.00
Saskatchewan	1.08	0.82, 1.43
Alberta	1.38 *	1.15, 1.66
British Columbia	1.86 *	1.47, 2.34
<b>Residence</b>		
Rural†	1.00	...
Urban	1.10 *	1.00, 1.22
<b>Household income</b>		
Lowest/Lower-middle†	1.00	...
Middle	1.33 *	1.16, 1.51
Upper-middle	1.74 *	1.54, 1.98
Highest	2.76 *	2.32, 3.30
<b>Educational attainment</b>		
Less than secondary graduation†	1.00	...
Secondary graduation	1.29 *	1.17, 1.44
Some postsecondary	1.50 *	1.35, 1.66
Postsecondary graduation	1.92 *	1.70, 2.18
<b>Employment status</b>		
Currently working	0.96	0.87, 1.05
Not currently working†‡	1.00	...
Worked in last 12 months, current work status unknown	1.00	0.55, 1.79
<b>Dental insurance</b>		
Insured	2.69 *	2.47, 2.93
Not insured†	1.00	...

Data source: 1996/97 National Population Health Survey, cross-sectional sample, Health file

Notes: The multivariate analysis is based on 50,481 persons aged 15 or older who provided information on all variables in the model. A "missing" category for income was included in the model to maximize the sample size; however, its odds ratio is not shown. Because of rounding, some confidence intervals with 1.00 as the lower limit were significant.

† Reference category, for which odds ratio is 1.00

‡ Not currently working, but had a job, or did not work during last 12 months.

\*  $p < 0.05$

... Not applicable

## Population per dentist

To some degree, dental visits may be affected by the availability of dental services. In 1992 (the most recent year for which data have been collected), there were 1,919 people for every dentist in Canada, an improvement over 1982 when the ratio had been 2,132 people per dentist.

Provincial population-to-dentist ratios varied substantially in 1992, from a high of 4,026 in Newfoundland to 1,600 in British Columbia. Although the ratio declined in all provinces between 1982 and 1992, the largest absolute declines occurred in Nova Scotia, Newfoundland and New Brunswick.

### Population per active licensed dentist (full- and part-time), Canada, by province, 1982 and 1992

	1982	1992	Difference	% reduction
<b>Canada</b>	<b>2,132</b>	<b>1,919</b>	<b>213</b>	<b>10.0</b>
Newfoundland	4,491	4,026	465	10.4
Prince Edward Island	2,971	2,676	295	9.9
Nova Scotia	2,693	2,104	589	21.9
New Brunswick	3,606	3,160	446	12.4
Québec	2,493	2,180	313	12.6
Ontario	1,875	1,736	139	7.4
Manitoba	2,347	2,032	315	13.4
Saskatchewan	2,925	2,823	102	3.5
Alberta	2,120	1,860	260	12.3
British Columbia	1,637	1,600	37	2.3

**Data source:** Table 7.2, *Health Personnel in Canada, 1992, Health and Welfare Canada (reference 21)*

Table 5

### Selected reasons for visiting dentist in past year,<sup>†</sup> household population aged 15 or older,<sup>†</sup> by household income and dental insurance status, Canada excluding territories, 1996/97

Household income and dental insurance status	Number	Reason for visiting dentist <sup>‡</sup>						
		Make sure everything is okay	Check-up insured	Catch problems early	Good dental health	Care of teeth/gums/dentures	Cleaning/Fluoride/Maintenance	Filling/Extraction
	'000	Age-adjusted %						
<b>Total</b>	<b>13,870</b>	<b>36</b>	<b>9</b>	<b>5</b>	<b>12</b>	<b>20</b>	<b>43</b>	<b>17</b>
<b>Household income</b>								
Lowest/Lower-middle	1,223	33	3	3	13	21	36	25
Middle	3,004	33	7	4	11	20	40	21
Upper-middle	5,021	38	10	6	13	19	42	15
Highest	2,306	37	12	6	15	21	48	13
Not stated	2,316	34	11	3	9	20	48	16
<b>Dental insurance status</b>								
Insured	9,170	36	14	5	13	20	44	15
Not insured	4,539	34	--	4	12	20	40	21
Missing	162	40	3	1	15	20	45	18

**Data source:** 1996/97 National Population Health Survey, cross-sectional sample, Health file

**Note:** Detail may not add to totals because of rounding.

<sup>†</sup> Based on respondents who saw a dentist in past year

<sup>‡</sup> Respondents may have given more than one reason.

## Reasons for visits

Most people who had visited a dentist in the past year reported that they had done so for routine care, including cleaning, fluoride treatment or maintenance (43%) (Table 5). Only 9% of respondents stated that they had gone to the dentist because they had insurance.

Reasons for seeking dental care varied considerably by household income. People in lower income households were less likely than those in high income households to mention preventive reasons. For example, about 36% of the lowest income group included procedures such as cleaning or fluoride treatment as a reason for a dental visit, compared with 48% of the highest income group. By contrast, 25% of the lowest income group cited a filling or extraction, compared with 13% of the highest income group.

The pattern was the same among those with and without dental insurance. Cleaning, fluoride treatment and maintenance were more common among the insured, while fillings and extractions were reported more often by non-insured respondents.



Table 6

Selected reasons for not visiting a dentist in past three years,<sup>†</sup> by household income and dental insurance status, household population aged 15 or older,<sup>‡</sup> Canada excluding territories, 1996/97

Household income and dental insurance status	Number	Reason for not visiting dentist <sup>‡</sup>				
		Respondent deemed unnecessary	Wears dentures	Cost of dental care	Not gotten around to it	Pain or embarrassment
	'000			Age-adjusted %		
<b>Total</b>	<b>4,442</b>	<b>46</b>	<b>23</b>	<b>17</b>	<b>11</b>	<b>4</b>
<b>Household income</b>						
Lowest/Lower-middle	1,029	47	24	20	8	3
Middle	1,403	44	24	19	12	4
Upper-middle	1,129	48	23	13	11	5
Highest	179	38	22	10	16	7
Not stated	701	46	20	18	15	4
<b>Dental insurance status</b>						
Insured	1,240	47	24	6	15	7
Not insured	3,161	45	23	22	9	3
Missing	41	52	24	25	30	2

**Data source:** 1996/97 National Population Health Survey, cross-sectional sample, Health file

**Note:** Detail may not add to totals because of rounding.

<sup>†</sup> Based on respondents who saw a dentist in past three years.

<sup>‡</sup> Respondents may have given more than one reason.

### Reasons for not seeking dental care

Among individuals who reported that they had not visited a dentist in the past three years, many (46%) said they did not think it was necessary, and close to one-quarter (23%) reported wearing dentures (Table 6) (see *The edentate population*). Some respondents had simply “not gotten around to it,” while a few cited “pain or embarrassment.” About one-fifth (17%) said that cost had prevented them from visiting a dentist in the past three years.

Once again, differences by household income and insurance status were apparent. Individuals in the lowest income group stated that they did not believe dental treatment was necessary (47%) more often than did members of the highest income group (38%). And 20% of the lowest income group mentioned cost, compared with just 10% of the highest income group. Similarly, while 22% of the non-insured population cited cost as a factor, just 6% of the insured group gave cost as the reason for not seeing a dentist in the past three years.

Pain and embarrassment were more common reasons for avoiding dental visits among high income individuals and those with dental insurance than

among people with lower incomes and no insurance. For instance, 7% of those in the highest income households and 7% of the insured gave these reasons for not seeing a dentist in the past three years. The corresponding figures were both 3% for those in the lowest/lower-middle income households and for the uninsured.

### Concluding remarks

According to the 1996/97 National Population Health Survey, household income, educational attainment and dental insurance coverage were strongly associated with dental visits. It is clear that individuals in lower income groups use dental services less frequently.<sup>22</sup> And when they do seek dental care, it is less likely to be for preventive reasons and more likely to be because of a dental emergency. Among the upper income groups, treatment involves a wider range of services.<sup>8</sup>

Advances in dental care and treatment have made it possible for more people to keep their teeth for life. In large measure, this may reflect the increasing availability of dental insurance and growing public awareness of the importance of dental health. ●

## The edentate population

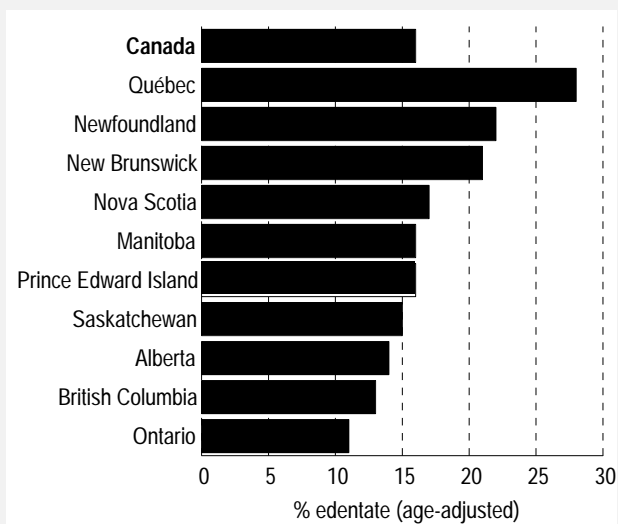
One measure of dental care is the proportion of the population that is edentate (have no natural teeth). The 1996/97 National Population Health Survey did not ask respondents about the number of teeth they had; the most recent information available is from the 1990 Health Promotion Survey. In 1990, 17% of Canadians aged 15 or older were edentate. At 28%, Québec had the highest rate of complete tooth loss, whereas the lowest rate, 11%, was in Ontario.

At all household income levels, individuals without dental insurance were more likely to be edentate. But dental insurance had little influence on the disparity between the lowest and highest income groups. Regardless of coverage, persons in lower income

groups were more likely to be edentate. Among the insured, 25% in the lowest income group were edentate, compared with 2% in the highest income group.

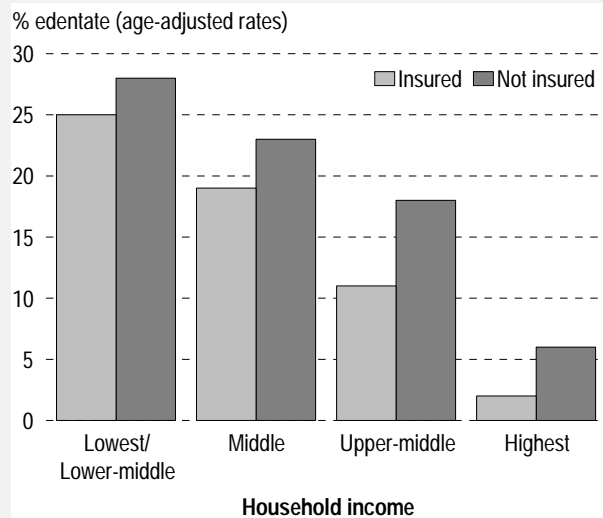
Edentualism was particularly prevalent among the elderly. In 1990, the rate among Canadians aged 65 or older was 50%. However, research suggests that the proportion of the elderly who have no teeth has declined.<sup>23,24</sup> This is likely attributable to improved access to dental care and widespread fluoridation of water.<sup>25</sup> As the population continues to age, the prevalence of edentualism in the population aged 65 or older is expected to decline even further.

**Edentate population aged 15 or older, by province, 1990**



Data source: 1990 Health Promotion Survey

**Edentate population aged 15 or older, by household income and dental insurance status excluding territories, Canada, 1990**



Data source: 1990 Health Promotion Survey

Notes: Both the insured and not insured gradients are significant at  $p < .0001$ . The differences within an income group by insurance status are significant except for the middle income group.

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## Appendix

Table A  
Distribution of household population aged 15 or older, by selected socioeconomic characteristics, Canada excluding territories, 1996/97

	Sample size	Estimated population	
		'000	%
<b>Both sexes</b>	<b>70,884</b>	<b>23,444</b>	<b>100</b>
Men	32,981	11,519	49
Women	37,903	11,925	51
<b>Age</b>			
15-24	9,602	3,983	17
25-34	14,216	4,472	19
35-44	14,684	5,238	22
45-54	10,715	3,771	16
55-64	8,304	2,565	11
65+	13,363	3,416	15
<b>Province</b>			
Newfoundland	827	449	2
Prince Edward Island	808	107	1
Nova Scotia	852	738	3
New Brunswick	902	607	3
Québec	2,412	5,862	25
Ontario	37,716	8,879	38
Manitoba	11,417	857	4
Saskatchewan	904	752	3
Alberta	13,683	2,121	9
British Columbia	1,363	3,072	13
<b>Residence</b>			
Rural	14,999	4,047	17
Urban	55,842	19,388	83
Missing	43	10	--
<b>Household income</b>			
Lowest/Lower-middle	9,528	3,051	13
Middle	16,668	5,865	25
Upper-middle	21,066	7,655	33
Highest	8,348	2,966	13
Missing	15,274	3,906	17
<b>Educational attainment</b>			
Less than secondary graduation	19,634	6,377	27
Secondary graduation	12,537	3,909	17
Some postsecondary	14,679	5,398	23
Postsecondary graduation	23,304	7,595	32
Not applicable/Not stated	730	165	1
<b>Employment status</b>			
Currently working	40,743	13,816	59
Not currently working	24,412	8,234	35
Worked in past 12 months, current work status unknown	378	127	1
Missing	5,351	1,268	5
<b>Dental insurance status</b>			
Insured	38,222	12,318	53
Not insured	30,230	10,318	44
Missing	2,432	808	3
<b>Dental visit in last year</b>			
Yes	41,400	13,870	59
No	27,638	8,972	38
Missing	1,846	602	3

Data source: 1996/97 National Population Health Survey, cross-sectional sample, Health file

-- Amount too small to provide reliable estimate

Table B  
Unadjusted odds ratios for dental insurance coverage, household population aged 15 or older, Canada excluding territories, 1996/97

	Unadjusted odds ratio	95% confidence interval
<b>Both sexes</b>		
Men	1.09*	1.03, 1.16
Women†	1.00	...
<b>Age group</b>		
15-24	4.59*	4.06, 5.20
25-34	4.92*	4.41, 5.50
35-44	6.30*	5.66, 7.01
45-54	5.62*	5.03, 6.27
55-64	2.92*	2.57, 3.32
65 or older†	1.00	...
<b>Province</b>		
Newfoundland†	1.00	...
Prince Edward Island	1.33*	1.05, 1.69
Nova Scotia	1.37*	1.09, 1.74
New Brunswick	1.57*	1.25, 1.97
Québec	0.94	0.78, 1.14
Ontario	2.34*	2.00, 2.75
Manitoba	1.90*	1.61, 2.25
Saskatchewan	1.38*	1.11, 1.71
Alberta	2.28*	1.93, 2.69
British Columbia	2.02*	1.64, 2.49
<b>Residence</b>		
Rural†	1.00	...
Urban	1.40*	1.28, 1.53
<b>Household income</b>		
Lowest/Lower-middle†	1.00	...
Middle	2.44*	2.17, 2.75
Upper-middle	7.09*	6.25, 8.02
Highest	10.74*	9.12, 12.64
<b>Educational attainment</b>		
Less than secondary graduation†	1.00	...
Secondary graduation	1.74*	1.56, 1.92
Some postsecondary	1.78*	1.62, 1.96
Postsecondary graduation	2.41*	2.20, 2.64
<b>Employment status</b>		
Currently working	2.74*	2.54, 2.95
Not currently working†‡	1.00	...
Worked in last 12 months, current work status unknown	1.60	0.98, 2.59

Data source: 1996/97 National Population Health Survey, cross-sectional sample, Health file

† Reference category, for which odds ratio is always 1.0

‡ Not currently working, but had a job, or did not work during last 12 months

\*  $p < 0.05$

... Not applicable

Table C  
**Unadjusted odds ratios for dental visit in past year, household population aged 15 or older, Canada excluding territories, 1996/97**

	Unadjusted odds ratio	95% confidence interval
<b>Both sexes</b>		
Men†	1.00	...
Women	1.18*	1.11, 1.26
<b>Age group</b>		
15-24	2.79*	2.50, 3.11
25-34	2.18*	1.94, 2.44
35-44	2.70*	2.42, 3.01
45-54	2.40*	2.15, 2.67
55-64	1.46*	1.29, 1.65
65 or older†	1.00	...
<b>Province</b>		
Newfoundland†	1.00	...
Prince Edward Island	1.85*	1.49, 2.28
Nova Scotia	1.76*	1.38, 2.24
New Brunswick	1.42*	1.13, 1.78
Québec	1.51*	1.24, 1.84
Ontario	3.28*	2.77, 3.88
Manitoba	1.99*	1.66, 2.38
Saskatchewan	1.19	0.94, 1.52
Alberta	1.94*	1.63, 2.30
British Columbia	2.43*	1.96, 3.02
<b>Residence</b>		
Rural†	1.00	...
Urban	1.39*	1.27, 1.52
<b>Household income</b>		
Lowest/Lower-middle	1.00	...
Middle	1.59*	1.41, 1.80
Upper-middle	2.89*	2.58, 3.23
Highest	5.44*	4.64, 6.39
<b>Educational attainment</b>		
Less than secondary graduation†	1.00	...
Secondary graduation	1.60*	1.45, 1.77
Some postsecondary	1.88*	1.72, 2.06
Postsecondary graduation	2.59*	2.33, 2.88
<b>Employment status</b>		
Currently working	1.63*	1.52, 1.75
Not currently working‡	1.00	...
Worked in last 12 months, current work status unknown	1.40	0.89, 2.20
<b>Dental insurance status</b>		
Insured	3.70*	3.44, 3.98
Not insured	1.00	...

**Data source:** 1996/97 National Population Health Survey, cross-sectional sample, Health file

† Reference category, for which odds ratio is 1.0

‡ Not currently working, but had a job, or did not work during last 12 months

\*  $p < 0.05$

... Not applicable