

# The health of Canadians with diabetes

## Abstract

### Objectives

This article focuses on the prevalence of diabetes mellitus among Canadians, the health status of those with the disease, their socioeconomic characteristics, personal health behaviours, and use of health services.

### Data source

The data are from the 1994/95 National Population Health Survey.

### Analytical techniques

Weighted counts were used in computing the prevalence of diabetes and the proportions of people with the characteristics and health behaviours considered.

### Main results

In 1994/95, 3% of Canadians aged 12 and older—over 722,000 people—reported having diabetes that had been diagnosed by a health care professional. The prevalence of diabetes increases with age and is associated with low income. A higher percentage of adults with diabetes were overweight compared to those without the disease.

### Key words

diabetes mellitus, cardiovascular disease, ophthalmologic complications, health surveys

### Principal release

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According to Statistics Canada's 1994/95 National Population Health Survey (NPHS), 3% of Canadians aged 12 and older—over 722,000 people—reported having diabetes that had been diagnosed by a health care professional. Less than one-quarter (23%) of them reported that they used insulin in the month before their interview. Just over half (51%) indicated that they took pills to control diabetes.<sup>a</sup>

Although diabetes can be managed, the health of people with the disease is often compromised by other major health problems such as hypertension, heart disease, stroke, cataracts, and glaucoma.

Concern has been expressed about the adequacy of information on Canadians with diabetes.<sup>1-3</sup> Using NPHS data, this article reports the main results of a recent study. The analysis focuses on Canadians with diabetes and their socioeconomic characteristics, health status, personal health behaviours, and use of health services (see *Methods*).

<sup>a</sup> A small proportion reported taking both insulin and pills in the month before their interview.

## Methods

### Data sources

The findings reported in this article are based on data from the 1994/95 National Population Health Survey (NPHS). The target population was household residents in all provinces and territories, except persons living on Indian reserves, on Canadian forces bases, or in some remote areas. A total of 27,263 households were selected for the survey. The final response rate was 88.7% of households. An additional institutional component covered long-term residents of hospitals and residential care facilities. Data from the institutional component and the territories are not included in this analysis.

The NPHS has a complex design involving stratified, multiple-staged sampling, with unequal probabilities of selection. The data are weighted to compute prevalence estimates for the total Canadian population.

NPHS data are stored in a General File (130 variables) on all 58,439 members of households sampled and a Health File containing in-depth information (a further 208 variables) on 17,626 randomly selected respondents aged 12 and older, one from each household. The file that was used in each instance is indicated below the tables and charts in this article.

One person in each household provided information for all household members. During the interview, this respondent was asked "Do(es) ... have any of the following long-term conditions that have been diagnosed by a health professional?" A list of conditions was read that included diabetes. The people identified by this question comprise the group considered to be "with diabetes" in this article.

### Analytical techniques

Weighted counts were used in computing prevalences. Approximate coefficients of variation were taken from tables provided in documentation that accompanies the NPHS public-use microdata files.

In accordance with the NPHS release guidelines, weighted estimates that are based on sample sizes of less than 30 or that have a coefficient of variation of 25% or greater were not published in this article.

### Limitations

The NPHS is not a complete source of epidemiological data. Only through biochemical screening with the oral glucose tolerance test can the true prevalence of diabetes in a population be determined.<sup>4</sup> In Canada, where no such population screening has been done nationally or provincially, the true prevalence of diabetes is thus still uncertain. Data from the U.S. National Health and Nutrition Examination Survey indicate that people with diagnosed diabetes, as captured by the NPHS, may constitute only 50% of all the people who would satisfy the biochemical criteria under screening.<sup>5</sup>

While there are two clinically and etiologically distinct subtypes of diabetes—Type 1 and Type 2—the NPHS does not distinguish between them. However, this article focuses on adults aged 25 and older, among whom the vast majority of people with diabetes have Type 2.

Large national surveys such as the NPHS, despite their limitations, provide useful information on the disease's impact on the health care system and the economy. Nevertheless, individuals with undiagnosed diabetes are at risk for various complications and ultimately also have an impact on the overall health and economic well-being of the Canadian population.

### Who has diabetes?

Among adults, the prevalence of the disease rises considerably with age. Just over 1% of 25- to 44-year-olds reported having the disease. For Canadians aged 65 and older, the rate was over 10%—that is, one in ten seniors is diabetic (Chart 1).

Statistics Canada's General Social Surveys (GSS) of 1985 and 1991 also contain self-reported data on diabetes.<sup>6,7</sup> The prevalence of diabetes obtained from the 1994/95 NPHS is generally similar to that obtained from the 1991 GSS.

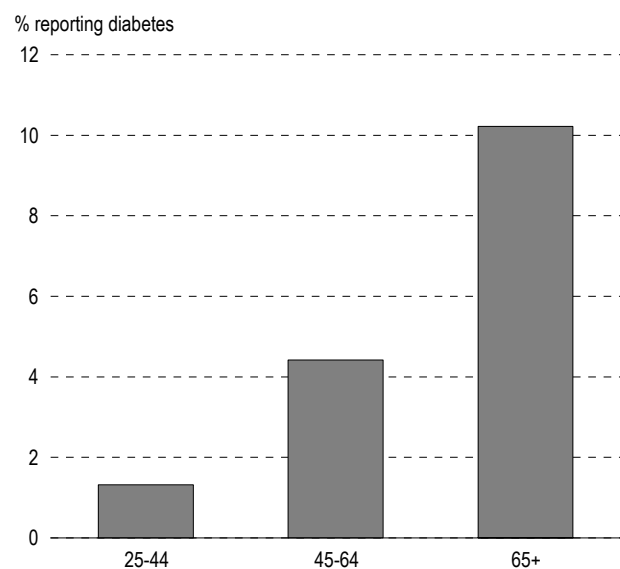
The prevalence of diabetes is higher among Canadians with low income. For example, about 6% of 45- to 64-year-olds with household incomes of \$10,000 to \$29,999 reported having diabetes. For individuals the same age but with household incomes of \$60,000 or more, the prevalence was only about 3% (Chart 2).

There was, however, no substantial difference in the prevalence of diabetes between the sexes, between urban and rural residents, or by marital status.

### Health status

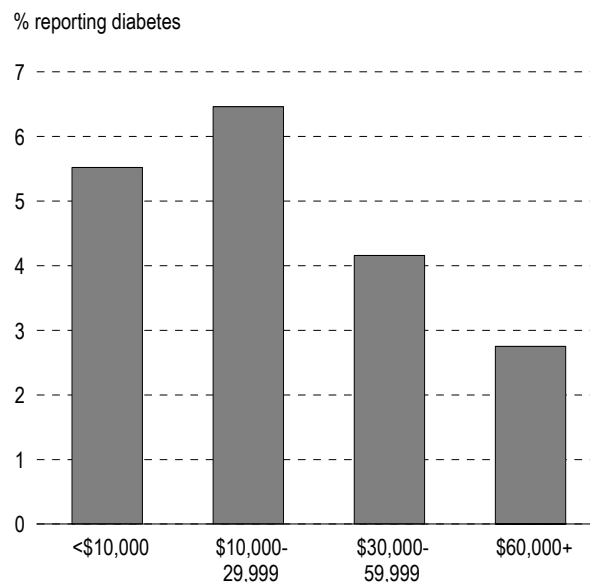
Not surprisingly, a larger proportion of people with diabetes reported that they were only in fair health, compared with those without the disease. While

Chart 1  
Prevalence of diabetes, by age group, Canada, 1994/95



Data source: 1994/95 National Population Health Survey, General File

Chart 2  
Prevalence of diabetes, by household income, 45- to 64 year-olds, Canada, 1994/95



Data source: 1994/95 National Population Health Survey, General File

Table 1  
Selected health status measures, by age group and diabetes status, Canada, 1994/95

	Age group					
	25-44		45-64		65+	
	With diabetes	Without diabetes	With diabetes	Without diabetes	With diabetes	Without diabetes
	%					
<b>Health status</b>						
Total	100.0	100.0	100.0	100.0	100.0	100.0
Excellent	--	30.2	--	22.3	--	13.5
Very good	--	40.5	18.2	35.0	14.5	28.9
Good	46.2	23.8	39.8	29.3	31.2	34.0
Fair	--	4.5	25.4	10.3	37.6	18.4
Poor	--	1.1	--	3.1	12.0	5.3
<b>Disability days in previous two weeks</b>						
Total	100.0	100.0	100.0	100.0	100.0	100.0
None	67.8	85.7	77.2	86.1	73.5	84.1
1-2	--	5.8	5.4	4.1	--	2.8
3-13	14.4	6.1	10.0	5.7	8.8	6.5
14+	--	2.4	7.4	4.1	13.6	6.6

Data source: 1994/95 National Population Health Survey; Health File for health status and General File for disability days  
-- Cell size too small to be expressed.

25% of people with diabetes aged 45 to 64 assessed their health as fair, just 10% of those without diabetes did the same (Table 1).

In the two-week-period before the NPHS, a larger proportion of people with diabetes, compared with those without the disease, had been ill to the extent that they had to stay in bed (either at home or in hospital) or had to cut down on usual activities. Among people with diabetes aged 45 to 64, 23% needed one or more "bed-days" during this two-week period; among those without the disease, the proportion was 14%.

### Accompanying conditions

Diabetes is often accompanied by cardiovascular, renal, neurologic, and ophthalmologic complications. As expected, NPHS data indicate that the prevalence of diagnosed hypertension, heart disease, stroke, cataracts, and glaucoma is higher among diabetics. For example, 11% of seniors with

diabetes suffered the effects of stroke, compared with 3% of seniors without diabetes (Table 2).

### Health behaviours

Smoking increases the risk of cardiovascular diseases for which people with diabetes already face an increased risk. Among 25- to 44-year-olds, equal proportions of people with and without diabetes were current smokers. At ages 45 to 64, the proportion who smoke was smaller, but fairly similar by diabetes status (Table 3).

Being overweight is a risk factor for diabetes among adults. NPHS data indicate that among 45- to 64-year-olds, 61% of those with diabetes were overweight, compared with 38% of those without diabetes. And in that age group, a slightly larger proportion of people with the disease were inactive, compared with those without diabetes.

### Use of health services

NPHS data indicate that a greater proportion of people with diabetes, compared with those without diabetes, had stayed overnight in hospital, nursing home or convalescent home in the 12 months before

Table 2  
Prevalence of selected conditions, by age group and diabetes status, Canada, 1994/95

	Age group					
	25-44		45-64		65+	
	With diabetes	Without diabetes	With diabetes	Without diabetes	With diabetes	Without diabetes
	%					
<b>Hypertension</b>						
Both sexes	14.9	2.5	36.1	13.6	40.5	27.2
Men	--	2.6	30.8	12.7	31.1	22.4
Women	--	2.4	42.4	14.5	49.2	30.8
<b>Heart disease</b>						
Both sexes	--	0.7	15.7	4.7	24.4	16.0
Men	--	0.6	18.6	5.7	26.1	18.3
Women	--	0.8	--	3.7	22.9	14.2
<b>Effects of stroke</b>						
Both sexes	--	--	--	0.9	10.6	2.8
Men	--	--	--	1.0	--	2.8
Women	--	--	--	0.7	--	2.8
<b>Cataracts</b>						
Both sexes	--	0.3	5.3	1.4	21.3	13.3
Men	--	--	--	1.2	15.9	9.6
Women	--	--	--	1.6	26.2	16.0
<b>Glaucoma</b>						
Both sexes	--	--	--	1.2	7.5	4.1
Men	--	--	--	0.9	--	3.4
Women	--	--	--	1.4	--	4.6

Data source: 1994/95 National Population Health Survey, General File  
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Table 3  
Health behaviours, by age group and diabetes status, Canada, 1994/95

	Age group					
	25-44		45-64		65+	
	With diabetes	Without diabetes	With diabetes	Without diabetes	With diabetes	Without diabetes
	%					
<b>Smoking</b>						
Total	100.0	100.0	100.0	100.0	100.0	100.0
Current	36.8	36.6	26.5	28.8	9.0	15.3
Non-smoker	63.2	63.4	73.5	71.2	91.0	84.7
<b>Body mass index</b>						
Total	100.0	100.0	100.0	100.0	100.0	100.0
Insufficient	--	9.6	--	4.9	--	--
Acceptable	--	45.9	20.0	35.8	--	--
Some excess	--	18.3	18.3	21.6	--	--
Overweight	49.7	26.2	60.6	37.6	--	--
<b>Physical activity index</b>						
Total	100.0	100.0	100.0	100.0	100.0	100.0
Active	--	16.4	--	16.2	13.5	15.0
Moderate	--	22.0	18.2	21.9	15.1	20.4
Inactive	62.5	61.6	67.9	61.9	71.5	64.5

Data source: 1994/95 National Population Health Survey, Health File  
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the survey. The difference in overnight hospitalization rates between those with and without diabetes generally increases with age. Nonetheless, 25% of seniors with diabetes had stayed overnight in hospital during this period, compared with 16% of those without the disease (Chart 3).

People with diabetes have specific health care needs, notably eye examinations and blood pressure checks. Although they use health services more frequently than people without diabetes, the frequency still falls short of that recommended by clinical guidelines.

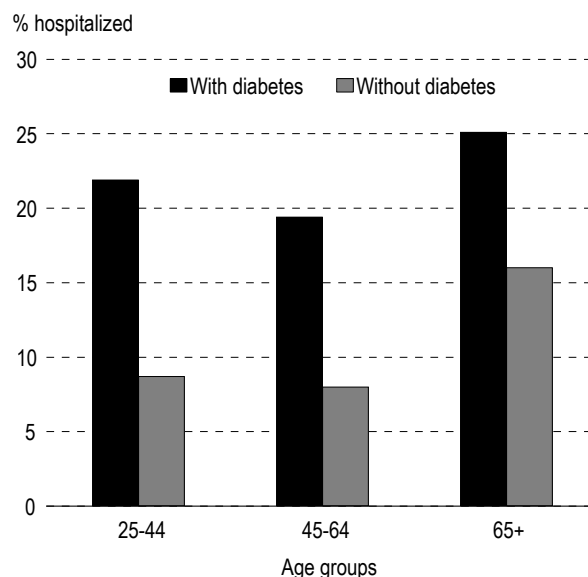
For persons with diabetes, the clinical practice guidelines of the Canadian Diabetes Advisory Board suggest visits for continuing care, including blood pressure checks once every six months and eye examinations at least once annually.<sup>8</sup> A substantial majority (84%) of people with diabetes aged 45 to 64 reported having had their blood pressure checked in the six months before the survey (Table 4). The greatest deficit occurs in eye examinations. More than half (55%) of Canadian with diabetes under age 45 had not consulted an eye specialist in the year before their interview. This figure declines slightly to 49% for those aged 45 to 64, and to 41% at age 65 and older.

### Concluding remarks

NPHS data indicate that Canadians with diabetes perceive themselves to be in poorer health than those without the disease. This conclusion is substantiated by measurements of overnight hospitalization and disability days.

The health of people with diabetes is often compromised by other medical problems such as hypertension, heart disease, stroke, cataracts, and glaucoma. While some health-promoting behaviours such as non-smoking and exercise may help to delay the onset of these conditions, efforts to increase these behaviours among people with diabetes appear to have had only limited success at the population level. The markedly higher prevalence of diabetes in low income populations and the constraints that low-income may place on the adoption of efforts to reduce the complications of diabetes are important considerations in health promotion program planning.

Chart 3  
Prevalence of overnight hospitalization in past 12 months, by age group and diabetes status, Canada 1994/95



Data source: 1994/95 National Population Health Survey, General File

Table 4  
Health service utilization indicators, by age group and diabetes status, Canada, 1994/95

	Age group					
	25-44		45-64		65+	
	With diabetes	Without diabetes	With diabetes	Without diabetes	With diabetes	Without diabetes
	%					
<b>Doctor consultations in previous 12 months</b>						
Total	100.0	100.0	100.0	100.0	100.0	100.0
0	--	21.4	6.4	20.2	--	11.7
1	--	20.9	5.7	20.2	7.0	14.2
2-3	18.5	25.7	15.8	24.3	11.0	24.0
4-11	46.8	22.6	47.6	25.7	45.7	34.2
12+	26.4	9.4	24.6	10.0	32.6	15.3
<b>Visits to eye doctor in previous 12 months</b>						
Total	100.0	100.0	100.0	100.0	100.0	100.0
0	55.0	72.6	49.0	61.5	40.7	52.4
1	30.2	23.8	36.7	33.3	36.7	34.4
2+	14.9	3.6	14.3	5.2	22.6	13.2
<b>Last blood pressure check</b>						
<6 months	71.2	41.5	84.3	52.9	91.6	72.8

Data source: 1994/95 National Population Health Survey, General File except blood pressure checks data, which are from the Health File  
-- Cell size too small to be expressed.

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