



**December 2009**

## Diabetes Care Gaps and Disparities in Canada

### Introduction

Diabetes is a common condition that is rising in prevalence. This report examines the extent to which people with diabetes received recommended care to prevent complications and the disparities in receiving this care. The results show there is a gap between recommended care and the care that patients say they receive. These gaps may result in serious complications for patients and increased costs for the health care system. There are also disparities in this care gap, such that adults with diabetes who live in lower income households are less likely to receive recommended diabetes care than those in higher income households. There are many initiatives under way to improve the provision of recommended diabetes care.

Diabetes is a disease in which the body is unable to produce insulin (type 1 diabetes) or the body does not produce enough insulin or is unable to effectively use insulin (type 2 diabetes). Most adults (approximately 90%) with diabetes have type 2.<sup>1</sup> Both type 1 diabetes and type 2 diabetes require ongoing clinical and self-care management to prevent or delay serious complications, including heart disease, kidney disease, blindness and nerve damage.

### Key Findings

- In 2007, the self-reported prevalence of a diagnosis of diabetes was 5.1% (age-standardized) in Canada for people 12 and older. Diabetes prevalence is highest in the 65-and-older group (17%).
- Of the four screening tests measured, adults with diabetes most frequently had one or more hemoglobin A1c (HbA1c) tests in the last 12 months (81%) and least frequently had their feet checked by a health care professional (51%) (age-standardized). Seventy-four percent of adults with diabetes reported having their urine tested for protein within the last year and 66% reported having a dilated eye exam in the last two years (age-standardized).

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- In Canada, the age-standardized percentage of adults with diabetes who reported that they received all four of the recommended care components was just 32%. This ranged from a low of 21% in Newfoundland and Labrador to a high of 39% for British Columbia. This indicates that there is room for improvement in care provision for adults with diabetes in all jurisdictions.
- Use of insulin, consultation with a medical specialist and having two or more comorbidities (other conditions) may indicate greater diabetes severity and were generally associated with greater likelihood of receiving the recommended care components. That is, adults with diabetes who
  - Used insulin were more likely to receive all four care components than those who did not use insulin (50% versus 28%).
  - Consulted another doctor or specialist were more likely to receive all four care components than those who did not (38% versus 28%).
  - Had two or more additional chronic conditions were more likely to receive all four care components than those with none (36% versus 27%).
- Diabetes prevalence was highest among adults with a household income of less than \$20,000 (8%); this rate was twice that of the group with an income of \$60,000 and over (4%) (age-standardized).
- People with higher household incomes were more likely to receive tests such as an HbA1c test, a urine test for protein, a dilated eye exam and a foot exam by a health care professional and to receive all four recommended care tests combined. The percentage of adults with diabetes receiving all four recommended care tests combined was highest in the highest household income group (42%) and lowest in the lowest household income group (21%) (age-standardized).

## Why Measure Diabetes Care

Diabetes is a prevalent and serious chronic condition and a growing problem. According to the World Health Organization, at least 171 million people worldwide have diabetes, and this figure is expected to more than double by 2030.<sup>2</sup> Diabetes has high associated costs for the people who have it and for the health care system. Approximately 80% of adults with diabetes die from heart disease and stroke. Life expectancy for adults with diabetes is shorter by up to 15 years for type 1 diabetes and by 5 to 10 years for type 2 diabetes.<sup>3</sup> A British Columbia study showed that adults with diabetes used, on average, 2.4 times the health resources of the general population.<sup>4</sup>

Diabetes care has been identified as a priority condition for policy-makers, health system managers and health care providers. Some studies have shown a gap between recommended care and the actual care received by adults with diabetes.<sup>5</sup> This analysis provides new information on the provision of select recommended diabetes care practices across Canada as reported by adults with diabetes. It highlights areas of strength and opportunities for improvement to inform efforts to improve diabetes care.

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It also includes information on self-managed care. Self-managed care refers to patients or their family/friends providing management and monitoring between patients' visits to their professional health care providers. While this analysis demonstrates some associations between various factors and the receipt of care, further research is required to identify the causes of these associations.

## Methodology

The analyses on prevalence and respondent characteristics (for example, age, sex and income) were based on the core content of the 2007 and 2005 Canadian Community Health Survey (CCHS) conducted by Statistics Canada. Data was collected between January and December of 2007 and 2005 from persons 12 and older living in private dwellings. In 2007, the CCHS had 65,946 respondents, and the Canada-level combined response rate was 77.6%. The data collection approach for the CCHS changed in 2007; additional details are available from the Statistics Canada website.<sup>6, 7</sup>

The analyses on diabetes care were based on the CCHS diabetes care (DIA) module, which was introduced in 2005 as optional content. In 2007, CIHI funded an expanded sample for this module. As a result, for the first six months, data for diabetes care was available for Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Ontario, British Columbia, the Yukon and the Northwest Territories. The DIA module data was collected from all provinces and two territories (Nunavut is excluded) from July to December 2007. Special survey weights were created to adjust for differing data collection periods. Because not all the provinces and territories selected the DIA module in 2005, it is difficult to compare 2005 results released by Statistics Canada and the 2007 results included in this report. The CCHS does not directly distinguish between type 1 and type 2 diabetes; however, the majority of adults with diabetes (including those responding to the survey) have type 2 diabetes. In most cases, the recommended care pertains to both type 1 and type 2 diabetes.

Respondents were included in the diabetes care analyses if they responded to the 2007 DIA module, were over 18 and had non-gestational diabetes, resulting in a study sample of 3,769. The Canada estimate includes data from all 10 provinces, the Yukon and the Northwest Territories.

Some recommended care elements were not included in the analysis for the following reasons: information was not collected from all provinces and territories and/or the question did not relate to primary health care (PHC) service provision or was not asked. Gestational diabetes was excluded from the analysis because the recommended care protocols are different for this patient group.

Item non-response (“don’t know,” not stated and refusal) were not included in the recommended care analyses, but are included in prevalence calculations. Bootstrapping was used to estimate the variance and confidence intervals to account for the complex survey design. Confidence intervals were established at the level of  $p < 0.05$  and are identified by vertical lines at the top of the bars in the figures. The confidence intervals show the range of estimates for the true value 19 times out of 20.

CIHI technical notes provide additional methodological information and are available upon request at [phc@cihi.ca](mailto:phc@cihi.ca). Requests for access to data should be directed to Statistics Canada ([ssd@statcan.ca](mailto:ssd@statcan.ca)).

#### Sources

Canadian Institute for Health Information and Statistics Canada.

## Results

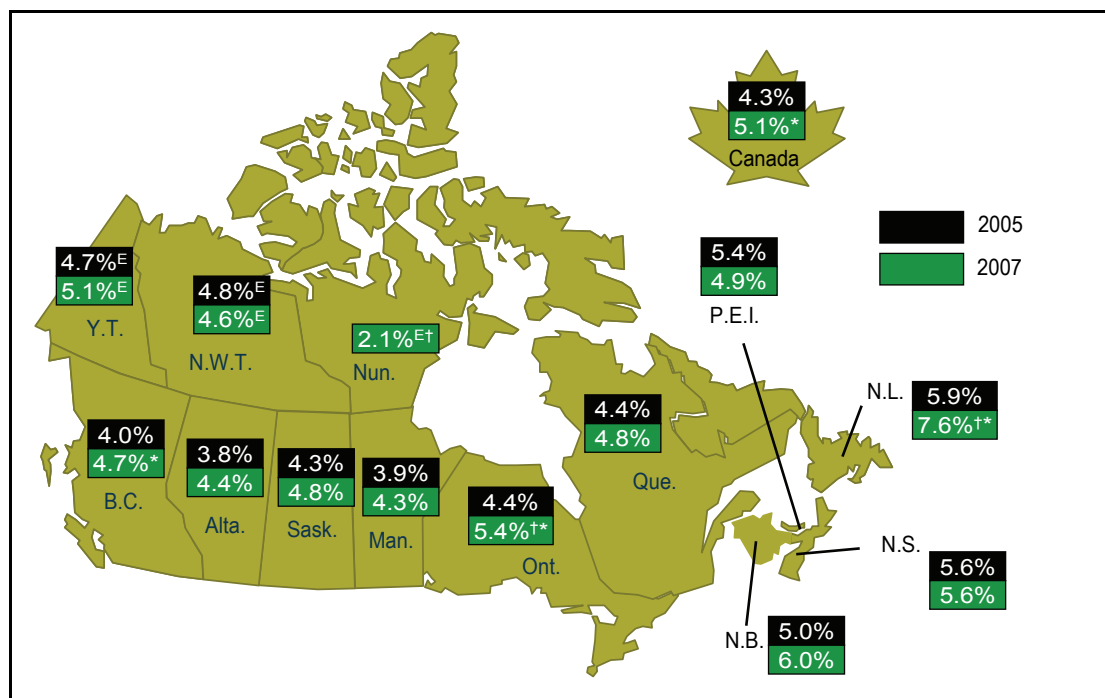
### Section 1: Diabetes Prevalence on the Rise in Canada

Diabetes prevalence is higher in older age groups, so age-standardized rates are presented to show differences across the country that are unrelated to age differences in the populations. In 2007, the age-standardized<sup>i</sup> prevalence of diabetes was 5.1% (Figure 1) of the population 12 or older. This rate has increased since 2005, when the age-standardized prevalence<sup>i</sup> of diabetes was 4.3% in Canada (Figure 1).

Most parts of Canada saw increases in diabetes prevalence in the two years from 2005 to 2007. In 2007, the age-standardized provincial diabetes prevalence rates ranged from 7.6% in Newfoundland and Labrador to 4.3% in Manitoba. In 2007, the Newfoundland and Labrador (7.6%) and Ontario (5.4%) rates were significantly higher than the Canada rate (5.1%). In 2005, the age-standardized provincial rates ranged from 5.9% in Newfoundland and Labrador to 3.8% in Alberta. Statistically significant increases between age-standardized 2005 and 2007 rates were found in rates for Canada, Newfoundland and Labrador, Ontario and British Columbia. The prevalence of diabetes is predicted to rise for reasons such as increasing obesity, sedentary lifestyles, unhealthy diets and average age of the population.<sup>2</sup>

i. Age-standardized to the 1991 Canadian population 12 and older. The methodology for age-standardization is included in the technical notes.

**Figure 1 Age-Standardized Percentage of Population 12 and Older Who Reported a Diagnosis of Diabetes, for Canada and by Province/Territory, 2005 and 2007**



**Notes**

E Use with caution.

\* Significantly different than 2005 data at  $p < 0.05$  level.

† Significantly different than Canada 2007 data at  $p < 0.05$  level.

Data was too unreliable to be published for Nunavut for 2005. Estimates for 2007 for the Northwest Territories may not be comparable to estimates from previous years due to differences in the geographic and Aboriginal/non-Aboriginal distribution of the samples.

Age-standardized to the 1991 Canadian population 12 and older.

Excludes gestational diabetes.

**Source**

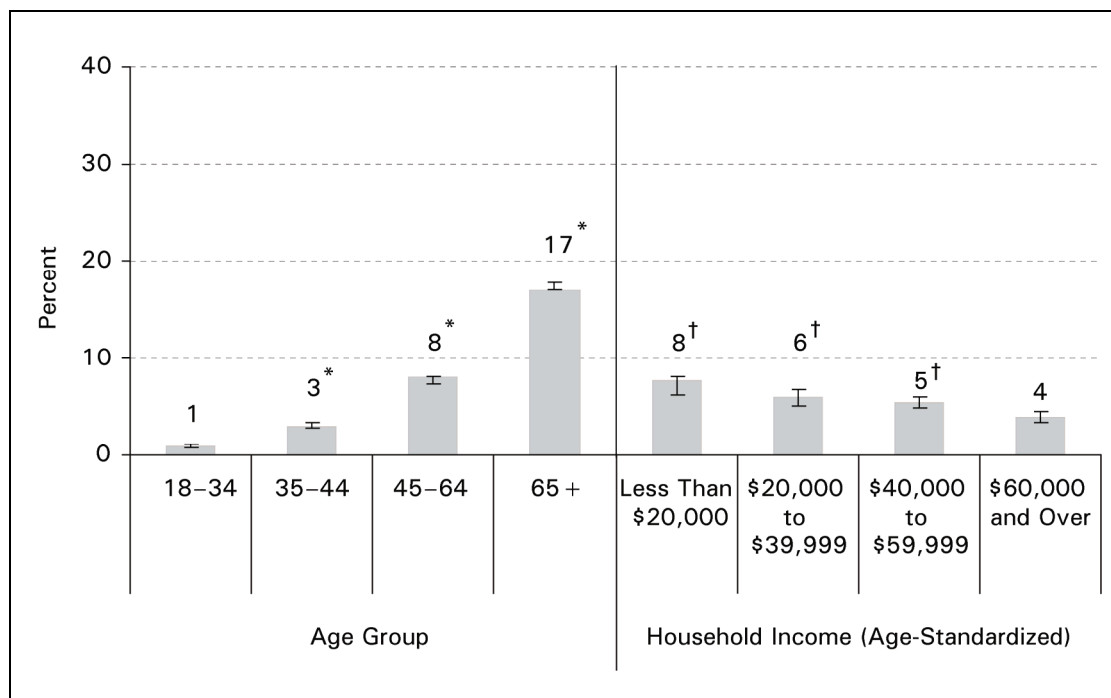
Canadian Community Health Survey, 2005 and 2007, Statistics Canada.

## Diabetes Prevalence Increases With Age

The 2007 CCHS data showed an increasing prevalence of diabetes with increasing age, with the highest rate in the population 65 and older (17%) (Figure 2) and the lowest rate found in those 18 to 34 (1%). That is, one in six adults over 65 had diabetes.

The age group patterns were similar in 2005. Considering Canada’s aging population, this has important implications for planning health care services.

**Figure 2 Percentage of Population Who Reported a Diagnosis of Diabetes, by Age Group and by Household Income Group, Canada, 2007**



**Notes**

\* Statistically significantly different from the 18-to-34 reference category at  $p < 0.05$  level.  
 † Statistically significantly different than the \$60,000-and-over reference category at  $p < 0.05$  level.  
 Unknown responses (missing responses, refused to answer or “don’t know”) were included in the age group analysis and excluded from the household income analysis, but account for <5% of responses overall.  
 Household income results have been age-standardized to the 1991 Canadian population 12 and older.  
 Excludes gestational diabetes.  
 Data for those age 12 to 17 not shown (less than 1.0%).

**Source**

Canadian Community Health Survey, 2007, Statistics Canada.

## Diabetes Prevalence Increases as Household Income Decreases

In 2007, adults in the lowest income group were twice as likely to have diabetes as adults in the highest income group (Figure 2). The diabetes rate (4%) among those with a household income of \$60,000 and over was significantly lower than the rate (8%) for those with a household income of under \$20,000 (age-standardized). Similarly, in 2005, the highest prevalence of diabetes was in the lowest household income group (6%).

## Impact of Other Factors

Other socio-economic and demographic factors that some studies have suggested may influence receipt of health services were also considered. Some of these other factors,

specifically, rural/urban status, ethnicity, Aboriginal status (for example, First Nations, Inuit, Métis), self-reported health status, gender and immigration status, showed few or no significant associations in this study, in some cases due to small sample size, and hence are not highlighted in this report.

## Section 2: Diabetes Clinical Care and Self-Care Gaps

### Access to Care

In these analyses, 96% of people 12 and older with diabetes reported having a regular medical doctor and 42% reported they consulted with another medical doctor or specialist. These percentages were similar to the 2005 results.

### Recommended Screening Tests for Diabetes

There are many types of care that are recommended for adults with diabetes. These analyses looked at the following four recommended care components:

- One or more HbA1c tests in the previous year;
- A urine test for protein in the previous year;
- A dilated eye exam in the previous two years; and
- A foot exam for sores or irritation by a health professional in the previous year.

An HbA1c test provides the average blood glucose (glycemic) level over three months and is fundamental to evaluate diabetes control. Some clinical practice guidelines recommend that adults with diabetes have an HbA1c test every three months when glycemic targets are not being met or when treatment is being adjusted or every six months when glycemic targets are being consistently met.<sup>8-10</sup>

Diabetes can cause kidney damage (also called nephropathy), resulting in kidney failure requiring dialysis or kidney transplant. Individuals with type 2 diabetes should be screened at diagnosis and every 12 months thereafter using a urine test for microalbuminuria. It is recommended that individuals with type 1 diabetes for more than five years be screened annually. Individuals with diabetes and kidney disease should be tested at least every six months.<sup>8-10</sup>

Damage to the small blood vessels in the eyes (also called retinopathy) is a complication of diabetes that can lead to blindness. Some clinical practice guidelines recommend that adults with type 2 diabetes have their eyes tested every one to two years if there are no signs of retinopathy. People with type 1 diabetes for more than five years should be screened annually if there are no signs of retinopathy.<sup>8-10</sup>

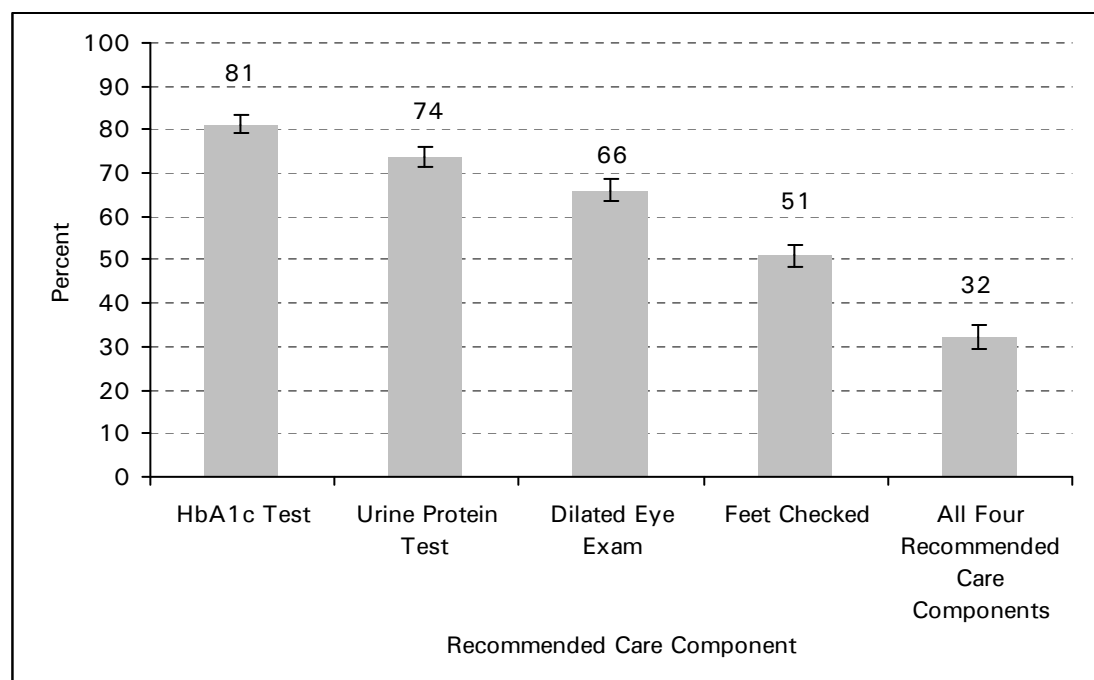
Diabetes can also cause damage to the nerves (called neuropathy) that can lead to decreased sensation. For example, an individual may be unable to feel sores on his or her feet. Poorly controlled diabetes can also result in a reduced ability to fight infections (called immunopathy). For adults with diabetes who have neuropathy or peripheral vascular disease (damage to the blood vessels in the extremities), minor foot injuries can produce skin ulcers, which can then lead to infection and to gangrene that requires

amputation. It is recommended that people with diabetes have their feet checked at least annually and that those at high risk have a foot exam more frequently.<sup>8,9</sup>

## Adults With Diabetes Receive Less Care Than Is Recommended

Adults with diabetes are receiving less care than is recommended, including HbA1c tests, urine protein tests, dilated eye exams, foot exams, influenza immunizations and self-managed care. In Canada, 81% of the adult population with diabetes received an HbA1c test, 74% received a urine protein test, 66% received a dilated eye exam within the past two years, 51% had their feet checked by a health professional, and only 32% had all four of these recommended care components (Figure 3).

**Figure 3 Age-Standardized Percentage of Adults 18 and Older With Diabetes Who Received Recommended Care Components From a Health Care Professional, Canada, 2007**



**Notes**

Unknown responses (missing responses, refused to answer or “don’t know”) were excluded from the analysis. Unknown responses account for <5% of responses for each question individually and for ~10% for all four recommended care components combined.

Age-standardized to the 2007 Canadian population 18 and older with non-gestational diabetes.

Excludes gestational diabetes.

**Source**

Canadian Community Health Survey, 2007, Statistics Canada.

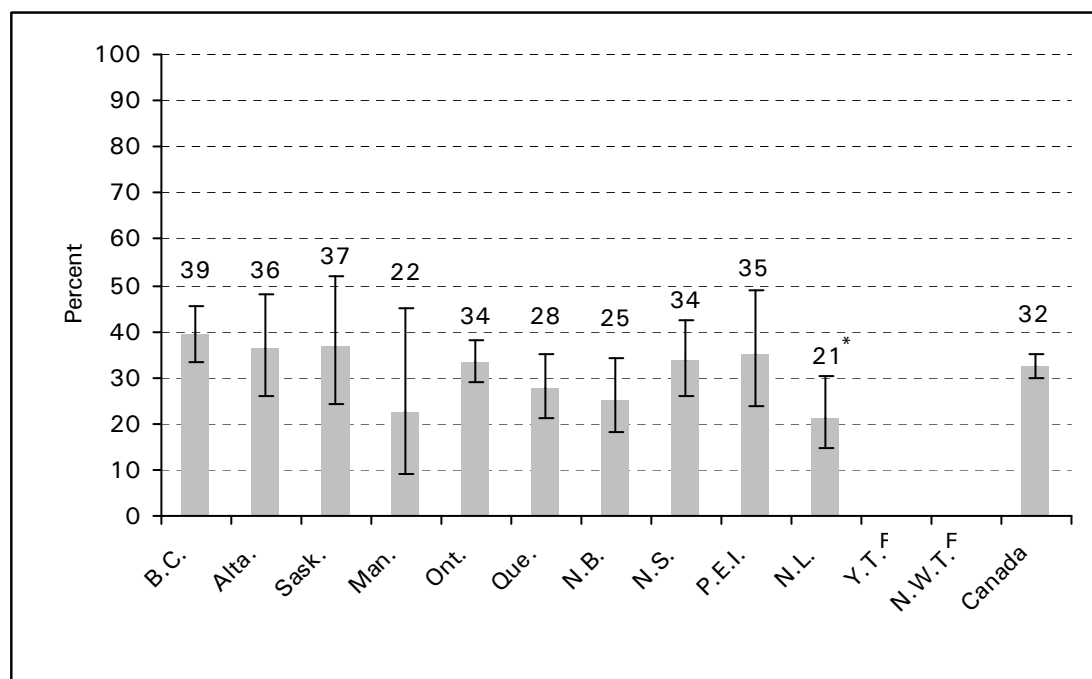


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The percentage of adults with diabetes who reported they had all four of these recommended care components ranged from 39% in British Columbia to 21% in Newfoundland and Labrador (age-standardized) (Figure 4). It is important to note that all reported jurisdictions' rates indicate room for improvement.

**Figure 4 Age-Standardized Percentage of Adults 18 and Older With Diabetes Who Received All Four Recommended Care Components in the Last Year (Two Years for Eye Exams), for Canada and by Province, 2007**



**Notes**

\* Significantly different than the percentage for Canada at the  $p < 0.05$  level.  
 F: data not published for the Yukon and the Northwest Territories because of small sample size.  
 Percentages represent people who answered "yes" for all four tests; the remainder includes people who answered "no." Unknown responses were excluded (missing responses, refused to answer or "don't know" responses, which were ~10% for Canada).  
 Age-standardized to the 2007 Canadian population 18 and older with non-gestational diabetes.  
 Excludes gestational diabetes.  
 Data not available for Nunavut.

**Source**

Canadian Community Health Survey, 2007, Statistics Canada.

Insulin users were almost twice as likely to receive all recommended care components as those who did not use insulin (50% versus 28%); nonetheless, only half of insulin users reported receiving the four recommended care components.

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Adults with diabetes who consulted with another medical doctor or specialist were more likely to get all recommended care components (38% versus 28%).

Adults with diabetes who had two or more chronic conditions<sup>ii</sup> in addition to diabetes were more likely to get all recommended care components compared with those with no additional conditions (36% versus 27%). Adults with diabetes and one additional condition (33%) were not statistically significantly different than adults with no additional conditions (27%).

Thirty percent of adults with diabetes in the oldest age group of 65 and older received all four recommended care components, compared with 37% in the youngest age group (18 to 34) and 34% in the 35-to-64 age group. These differences were not statistically significant.

## Annual HbA1c Testing

In 2007, 8 out of 10 people with diabetes (81%) had one or more HbA1c tests performed in the past 12 months by a health care professional (Figure 5). For Canada, this was the highest percentage of any of the tests studied. This age-standardized percentage ranged from 86% in Prince Edward Island to 75% in Newfoundland and Labrador and the Northwest Territories. No province/territory had a percentage significantly different than the percentage for Canada.

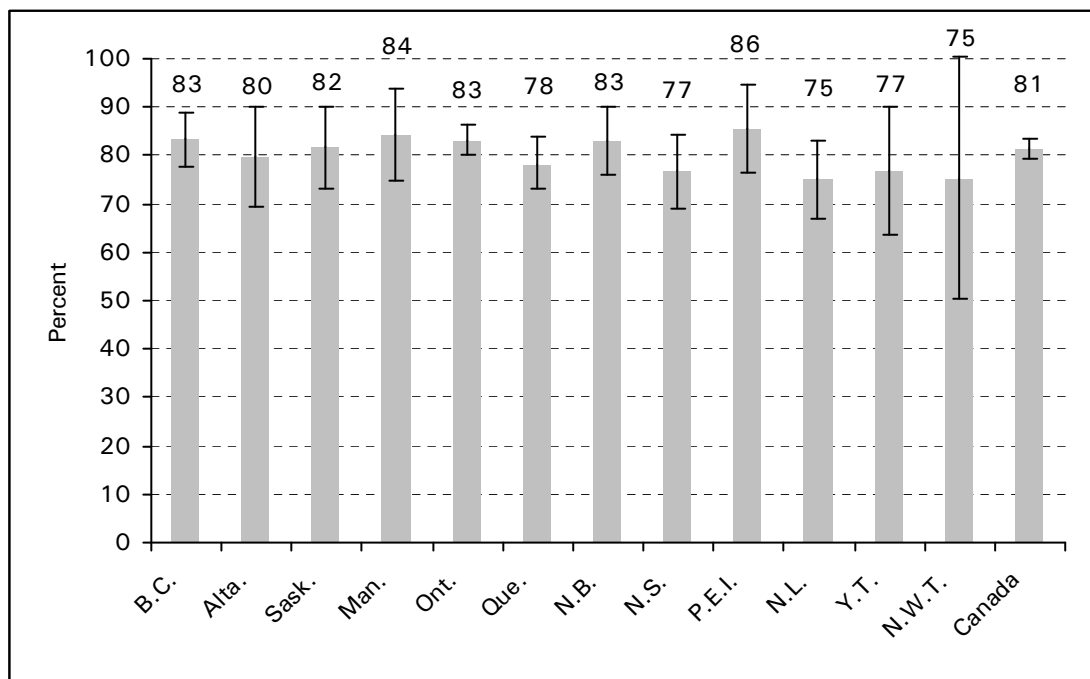
Adults with diabetes who use insulin were more likely to receive an HbA1c test than those with diabetes who did not use insulin (87% versus 80%). Adults who had a regular medical doctor were more likely to receive an HbA1c test than those who did not (82% versus 59%). Both these differences were statistically significant.

The youngest age group (18 to 34) of adults with diabetes was more likely to receive an HbA1c test (84%) than the oldest age group (65 and older) (79%). Eighty-three percent of adults age 35 to 64 received an HbA1c test, which was not significantly different than the youngest age group.

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ii. Selected chronic health conditions include arthritis, chronic obstructive pulmonary disease, heart disease, cancer, high blood pressure and mood disorders.

**Figure 5 Age-Standardized Percentage of Adults 18 and Older With Diabetes Who Received an HbA1c Test in the Past Year, for Canada and by Province/Territory, 2007**



**Notes**

\* Statistically different than Canada at the  $p < 0.05$  level.  
 Unknown responses (missing responses, refused to answer or “don’t know”) were excluded from the analysis, but account for < 5% of responses overall.  
 Age-standardized to the 2007 Canadian population 18 and older with non-gestational diabetes.  
 Excludes gestational diabetes.  
 Data not available for Nunavut.

**Source**

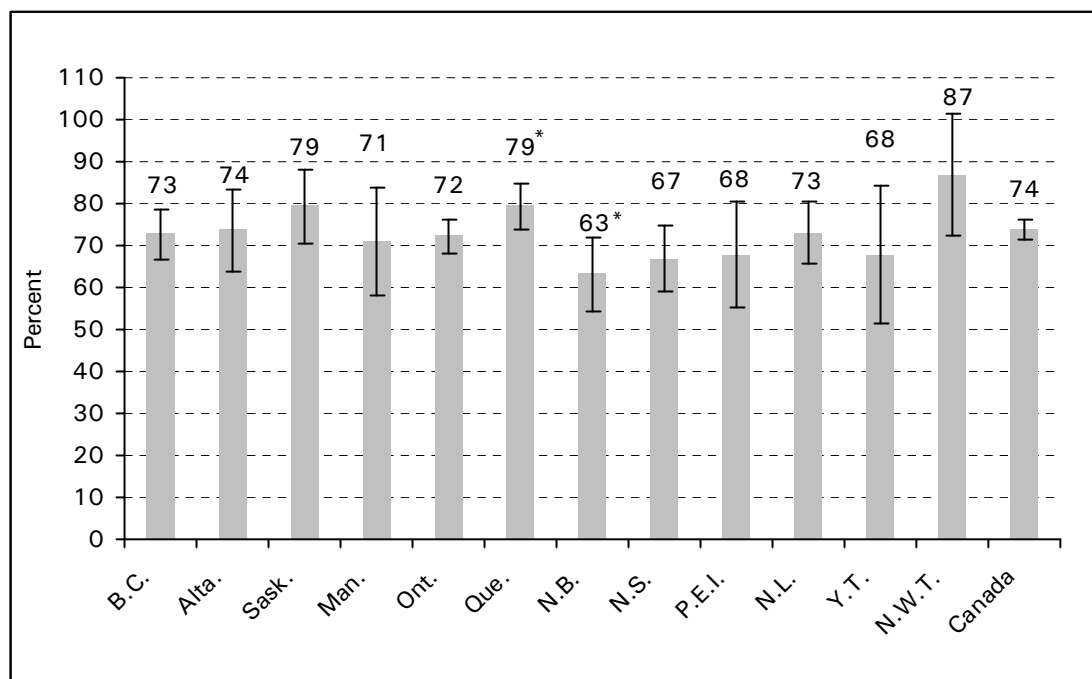
Canadian Community Health Survey, 2007, Statistics Canada.

## Urine Testing Annually

Seventy-four percent of adults with diabetes reported that they had their urine tested for protein within the last year (Figure 6). The age-standardized percentage ranged from 87% in the Northwest Territories to 63% in New Brunswick. New Brunswick and Quebec were statistically different from the Canada rate. Adults with diabetes were significantly more likely to have a urine test if they

- Used insulin (78%), compared with those who did not use insulin (73%).
- Had a regular medical doctor (74%), compared with those who did not have a regular medical doctor (59%).

**Figure 6 Age-Standardized Percentage of Adults 18 and Older With Diabetes Who Received a Urine Protein Test in the Past Year, for Canada and by Province/Territory, 2007**



**Notes**

\* Statistically different than Canada at the  $p < 0.05$  level.

Unknown responses (missing responses, refused to answer or “don’t know”) were excluded from the analysis, but account for < 5% of responses overall.

Age-standardized to the 2007 Canadian population 18 and older with non-gestational diabetes.

Excludes gestational diabetes.

Data not available for Nunavut.

**Source**

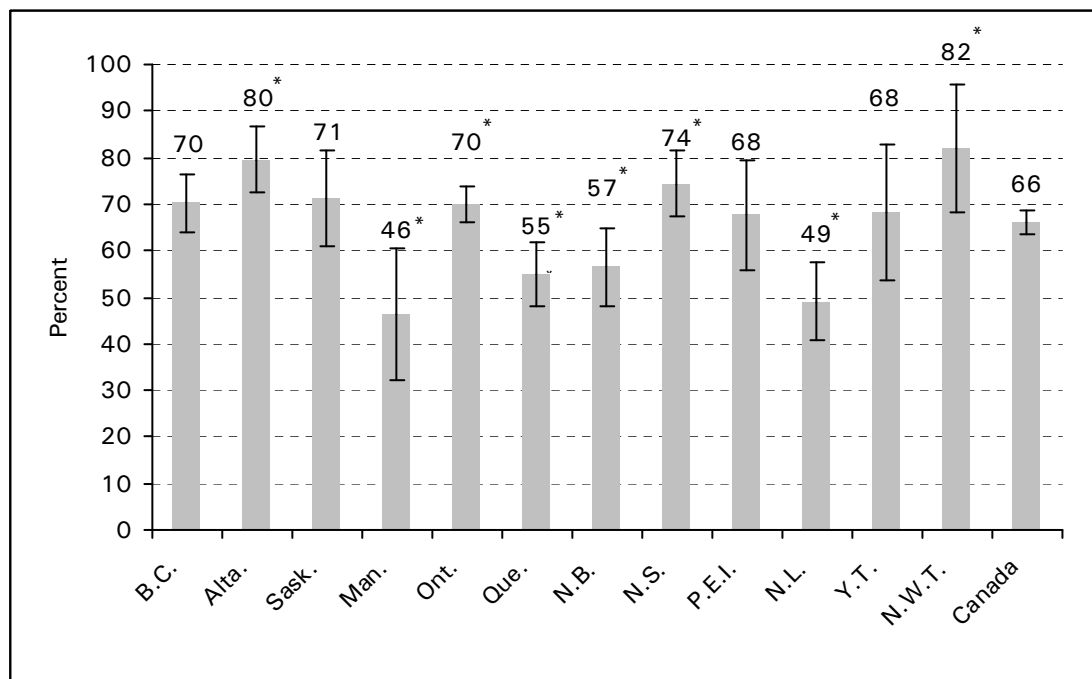
Canadian Community Health Survey, 2007, Statistics Canada.

## Dilated Eye Examinations Every Two Years

In Canada, two in three adults (66%) with diabetes reported having a dilated eye exam within the past two years (Figure 7). The percentages ranged from 82% in the Northwest Territories to 46% in Manitoba (age-standardized). The percentages for the Northwest Territories (82%), Alberta (80%), Ontario (70%) and Nova Scotia (74%) were significantly higher than the percentage for Canada. New Brunswick (57%), Quebec (55%), Newfoundland and Labrador (49%) and Manitoba (46%) had significantly lower rates than Canada.

More adults with diabetes who used insulin reported having a dilated eye exam than those who did not use insulin (79% versus 63%); however, this difference was not statistically significant. More adults with diabetes who consulted with another medical doctor or specialist reported having a dilated eye exam than those who did not (69% versus 64%, which is statistically significant).

**Figure 7 Age-Standardized Percentage of Adults 18 and Older With Diabetes Who Received a Dilated Eye Exam in the Past Two Years, for Canada and by Province/Territory, 2007**



**Notes**

\* Statistically different than Canada at the  $p < 0.05$  level.  
 Unknown responses (missing responses, refused to answer or “don’t know”) were excluded from the analysis, but account for < 5% of responses overall.  
 Age-standardized to the 2007 Canadian population 18 and older with non-gestational diabetes.  
 Excludes gestational diabetes.  
 Data not available for Nunavut.

**Source**

Canadian Community Health Survey, 2007, Statistics Canada.

## Half of Adults With Diabetes Have Feet Checked Annually by a Professional

In Canada, only 51% of adults with diabetes reported that they had their feet checked for sores or irritation by a health professional in the last year, the lowest result of all the tests studied (Figure 8). The age-standardized percentage ranged from 74% in the Northwest Territories to 41% in Newfoundland and Labrador. Newfoundland and Labrador was the only province that was statistically different from Canada.

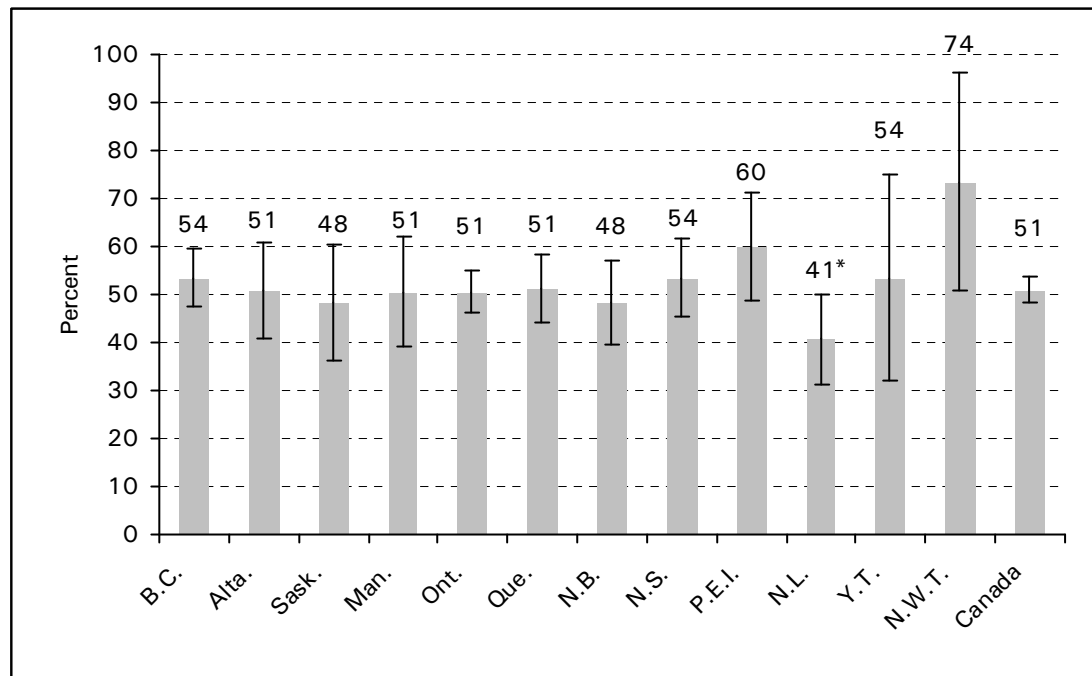
More adults with diabetes who used insulin had their feet checked by a health professional than those who did not use insulin (70% versus 46%). Similarly, more adults with diabetes who consulted with a medical doctor or specialist had their feet checked, compared with those who did not (57% versus 46%); however, this

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difference was not statistically significant. Early identification of foot sores and irritation is important to prevent minor sores and irritations from developing and requiring amputations and is easy to do with minimal cost.

**Figure 8 Age-Standardized Percentage of Adults 18 and Older With Diabetes Who Had Their Feet Checked by a Health Professional in the Past Year, for Canada and by Province/Territory, 2007**



**Notes**

\* Statistically different than the rate for Canada.  
 Unknown responses (missing responses, refused to answer or “don’t know”) were excluded from the analysis, but account for <5% of responses overall.  
 Age-standardized to the 2007 Canadian population 18 and older with non-gestational diabetes.  
 Excludes gestational diabetes.  
 Data not available for Nunavut.

**Source**

Canadian Community Health Survey, 2007, Statistics Canada.

## Influenza Immunization Higher in Older Age Groups

Adults with diabetes are at higher risk for mortality and morbidity from influenza. Studies on high-risk populations that include diabetes have shown that immunization can reduce hospitalizations from influenza by 40%.<sup>8</sup> Some guidelines recommend that individuals with diabetes have influenza immunizations annually.<sup>8</sup>

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In Canada, 62% of adults 18 and older with diabetes reported having an influenza immunization in the past year. The age-standardized<sup>iii</sup> percentages ranged from 76% in Nova Scotia to 50% in Newfoundland and Labrador. Nova Scotia and Ontario (69%) were significantly higher than the rate for Canada, whereas Newfoundland and Quebec (53%) were significantly lower than the rate for Canada.

Adults with diabetes reported having influenza immunizations at about twice the rate of the rest of the population. Statistics Canada data indicates that, in 2007, 30% of the general population 12 and older reported having an influenza immunization in the past year.<sup>11</sup>

More people in the older age groups received an influenza immunization. Adults with diabetes age 65 or older (76%) and those age 35 to 64 (53%) were more likely to get an influenza immunization than those age 18 to 34 (40%).

### **Opportunities for Improvement in Self-Care for Adults With Diabetes**

Self-care management is an important part of diabetes care that can identify potential problems early and prevent complications. Self-care management includes diet, exercise, taking medication as prescribed, self-monitoring of blood glucose (SMBG) and checking feet for sores or irritation. Recommended care guidelines suggest that SMBG is an integral component of self-management for some adults with diabetes. For adults with type 1 diabetes, daily monitoring of blood glucose is considered essential. Testing three or more times per day has been associated with statistically significant improvement in blood glucose levels. Frequent testing is also considered important for adults with type 2 diabetes who use insulin. However, there is little research evidence on the effect of SMBG in patients with type 2 diabetes who do not use insulin or medications and the optimal frequency for SMBG in adults with type 2 diabetes is not known.<sup>8</sup> Improved blood glucose control can help patients avoid potential diabetes complications and daily fluctuations in blood glucose. It is recommended that individuals and their health care professionals conduct foot exams annually, and more frequently for those at high risk,<sup>8</sup> to lower the risk of lesions and amputations.

### **Half of Adults With Diabetes Self-Monitor Blood Glucose Daily**

Half (50%) of adults with diabetes reported that they self-monitored their blood glucose daily (Figure 9). An additional 28% reported that they monitored weekly, 9% monitored monthly, 4% monitored yearly and 9% never monitored their blood glucose.

In the 2008 Canadian Survey of Experiences With Primary Health Care, most adults with diabetes and a regular medical doctor were confident that they could follow through on medical treatments at home (89% strongly agreed or agreed). This survey also found that 40% of adults with diabetes who had a regular medical doctor “almost always” or “most of the time” were helped to develop a treatment plan in the past

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iii. Age-standardized to the 2007 Canadian population 18 or older with diabetes.

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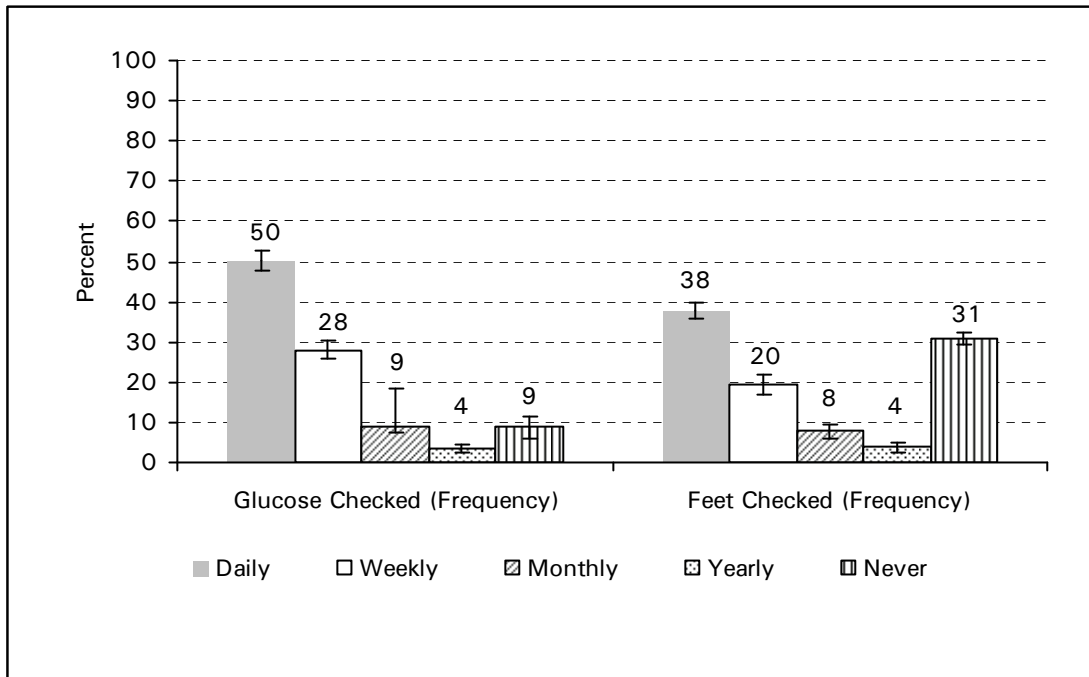
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12 months that they could use in their daily life. Another 11% were “sometimes” helped to develop a plan. Almost half (46%) of those with diabetes generally didn’t, almost never or never developed a treatment plan. Three percent of responses were unknown.

## Almost One in Three Adults With Diabetes Never Check Their Feet

Thirty-eight percent of adults with diabetes reported that they or a family member or friend checked their feet daily (Figure 9). An additional 20% checked their feet weekly, 8% checked monthly and 4% checked yearly. Thirty-one percent reported that they never checked their feet.

**Figure 9 Percentage of Adults 18 and Older With Diabetes Who Had Checked Their Blood Glucose and Who Checked Their Feet Themselves or Had Their Feet Checked by a Family Member or Friend, Canada, 2007**



**Notes**

Unknown responses (missing responses, refused to answer or “don’t know”) were excluded from the analysis, but account for < 5% of responses overall. Excludes gestational diabetes.

**Source**

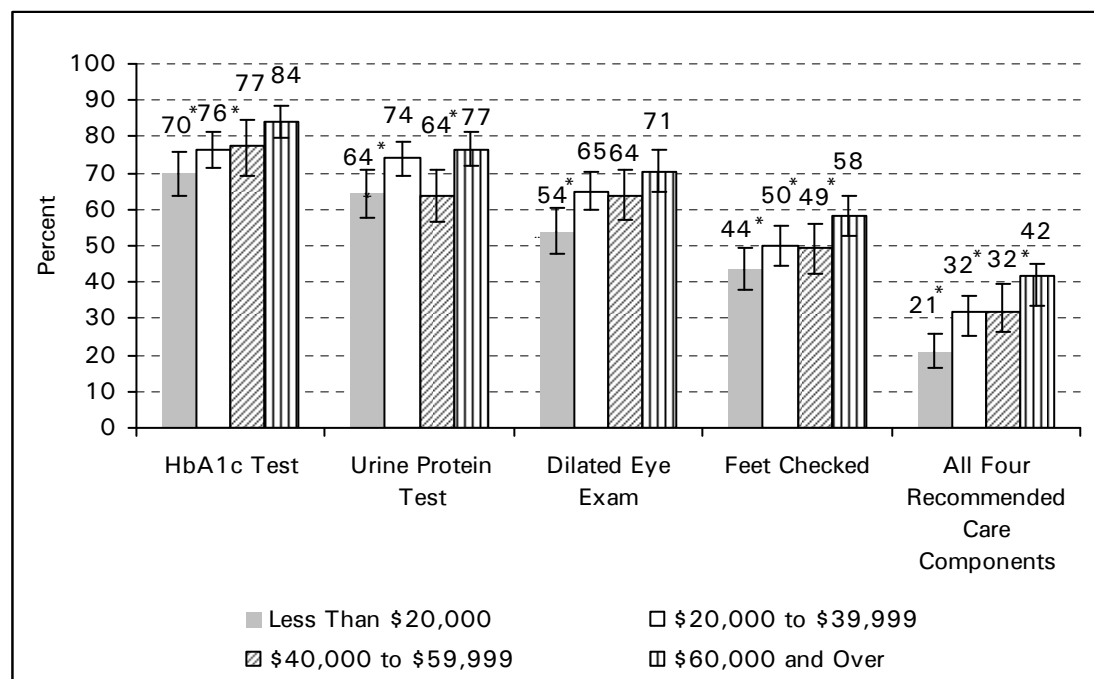
Canadian Community Health Survey, 2007, Statistics Canada.



## Section 3: Socio-Economic Disparities in Diabetes Care

Adults with diabetes in the highest household income group (age-standardized) were twice as likely to receive all four types of recommended care as those in the lowest household income group (42% versus 21%). Forty-two percent of adults with diabetes with a household income of \$60,000 and over reported receiving all four types of recommended care (Figure 10). This was statistically higher than those with a household income of \$40,000 to \$59,999 (32%), those with a household income of \$20,000 to \$39,999 (32%) and those with a household income of less than \$20,000 (21%).

**Figure 10 Age-Standardized Percentage of Adults 18 and Older With Diabetes Who Received Recommended Care Components, by Household Income, Canada, 2007**



**Notes**

\* Statistically different than \$60,000 and over at the  $p < 0.05$  level.  
 Unknown responses (missing responses, refused to answer or 'don't know') were excluded from the analysis. Unknown responses account for < 5% of responses for each question individually and for ~ 10% for all four recommended care components combined.  
 Age-standardized to the 2007 Canadian population 18 and older with non-gestational diabetes. Excludes gestational diabetes.

**Source**

Canadian Community Health Survey, 2007, Statistics Canada.

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Adults with diabetes in the highest household income group (age-standardized) were more likely than those in the lowest income group to have at least one HbA1c test in the past year, a urine protein test in the past year and a foot exam by a health professional in the past year and to have all four recommended tests (Figure 10). Those with a household income of less than \$20,000 reported having fewer eye exams in the past two years than those with incomes of \$60,000 and over (54% versus 71%) (age-standardized) (Figure 10). These patterns may lead to more complications for people with diabetes and lower household incomes. A recent study found higher age-standardized hospitalization rates for adults with diabetes in low socio-economic groups compared with high socio-economic groups (102 per 100,000 versus 43 per 100,000).<sup>12</sup>

## Discussion

Diabetes prevalence is rising<sup>2, 13</sup> and has nearly doubled since 1995. According to Statistics Canada, the prevalence of diabetes in Canada among those 12 and older was 3.0% from 1994 to 1995,<sup>14</sup> compared with 5.8% in 2007 (or 5.1%<sup>iv</sup> age-standardized) in this study. While prevalence is rising, fewer than one in three (32%) adults with diabetes reported receiving all four of the recommended care components addressed in this report. This gap may lead to an increased number of diabetes-related complications. This indicates there is room for improvement in diabetes care across Canada.

Comparisons with the United Kingdom also suggest that there is room for improvement in diabetes care in Canada. In Canada, 81% of adults with diabetes reported having at least one HbA1c test in the past 12 months, 74% had their urine tested for protein in the past year and 66% had a dilated eye exam in the past two years. By contrast, in the United Kingdom in 2006–2007, over 95% of adults with diabetes had a record for each of an HbA1c test, a blood pressure test and/or a total cholesterol test<sup>15</sup>; in addition, 86% were offered screening for diabetic retinopathy in the past year.<sup>16, v</sup>

Adults with diabetes who use insulin and/or consulted with another medical doctor or specialist and/or had two or more comorbidities are likely to be more seriously ill, and this analysis showed that they were more likely to have recommended tests.

## Opportunities for Improvement

Trends over time are important to monitor, especially with respect to receipt of care and comorbidities. CIHI is currently working with jurisdictions, clinicians and other health organizations across the country to promote the development and use of common data standards for electronic medical records used in primary health care settings. This may lead to the increased availability of standardized data on diabetes

iv. Age-standardized to the 1991 Canadian population.

v. The United Kingdom has an administrative data source that may be more accurate than survey data.

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care that can then be used to support the efforts of health care professionals, researchers and policy-makers to increase the proportion of people with diabetes who receive recommended care.

Most jurisdictions have initiatives to improve the quality of care for diabetes, such as diabetes registries that can track whether individuals with diabetes are receiving care and send out reminder notices for missed tests. For example, one British Columbia project improved diabetes care rates by supporting the efforts of primary care physicians to monitor and respond to diabetes care gaps through the use of disease registries and incentives, respectively.<sup>17, 18</sup>

## Additional Resources

Canadian Institute for Health Information

[www.cihi.ca](http://www.cihi.ca)

- *Experiences With Primary Health Care in Canada, 2009*
- *A Framework for Health Outcomes Analysis: Diabetes and Depression Case Studies*
- *Reducing Gaps in Health: A Focus on Socio-Economic Status in Urban Canada*

Statistics Canada

[www.statcan.gc.ca/pub](http://www.statcan.gc.ca/pub)

- *Diabetes: Prevalence and Care Practices*
- *Smoking and Diabetes Care: Results From CCHS Cycle 3.1 (2005)*

## About CIHI

The Canadian Institute for Health Information (CIHI) collects and analyzes information on health and health care in Canada and makes it publicly available. Canada's federal, provincial and territorial governments created CIHI as a not-for-profit, independent organization dedicated to forging a common approach to Canadian health information. CIHI's goal: to provide timely, accurate and comparable information. CIHI's data and reports inform health policies, support the effective delivery of health services and raise awareness among Canadians of the factors that contribute to good health.

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