Opportunities to Improve Diabetes Prevention and Care in Canada

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Abstract

The prevalence of diabetes in Canada is expected to more than double by 2030. Additionally, the costs associated with diabetes have nearly doubled between 2000 and 2010 and will continue to rise unless improvements are made. Fortunately, more effective policies and programs can reduce both the prevalence of diabetes and the complications associated with the disease. We used responses from the Canadian Community Health Survey to assess whether Canadians with diabetes report (1) receiving from healthcare professionals the recommended tests to screen for complications, (2) performing sufficient self-care for their diabetes and, (3) for those in lower-income households, receiving less recommended care. The results show that only one in three (32%) Canadian adults with diabetes reported having received all four recommended tests during the previous year. Lower-income Canadians were more likely to report having diabetes and less likely to report receiving the four diabetes care tests. Only half of adults with diabetes reported checking their blood sugar levels daily, and only two in five reported checking their feet for injuries and ulcers. Improvements to adherence to diabetes care guidelines are needed to reduce the likelihood that Canadians, especially lower-income Canadians, will develop complications from diabetes. Bending the cost curve downward is possible through more effective policies and programs that prevent diabetes in the first place and that ensure Canadians with diabetes get both recommended care from their healthcare providers and enough support for effective self-care.

Diabetes mellitus, often referred to as diabetes, is a disease characterized by high blood sugar levels that result from little to no production of insulin in the pancreas or from the body's reduced ability to respond to insulin. Five percent of all deaths worldwide are attributed to diabetes (World Health Organization 2010a). Within Canada in 2006, diabetes was the sixth leading cause of death (Statistics Canada 2010). The World Health Organization has predicted that the prevalence of diabetes in Canada will increase 75% over 30 years, from two million patients in 2000 to 3.5 million patients in 2030 (World Health Organization 2010b). Poorly managed diabetes can lead to complications such as very low blood sugar, kidney damage, blindness, heart disease and limb amputations. The economic costs of diabetes are also on the rise. Estimates suggest that direct costs (e.g., hospitalizations, physician visits, medications) have doubled in the past 10 years and are now approximately $2.1 billion – about 3.5% of public health spending – and indirect costs (e.g., lost production, long-term disability) are approximately $10.1 billion (Canadian Diabetes Association 2009). Better diabetes prevention and management policies are needed to both decrease the burden of illness of this disease as well as bend downwards the cost curve associated with diabetes.

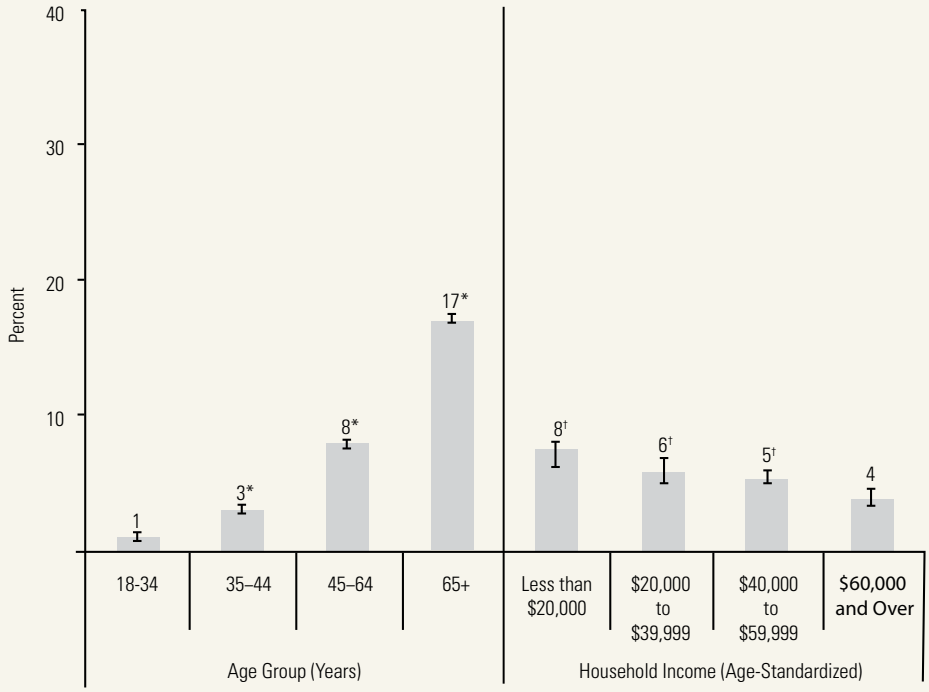
Estimates suggest that direct costs have doubled in the past 10 years and are now approximately $2.1 billion – about 3.5% of public health spending.

This article summarizes more detailed findings presented in the Canadian Institute for Health Information (CIHI) analysis-in-brief titled *Diabetes Care Gaps and Disparities in Canada* (CIHI 2009).

Data Source

We used self-reported data from the 2007 cycle of the Canadian Community Health Survey (CCHS) conducted by Statistics Canada as our primary data source for this study. In 2007, the CCHS had 65,946 respondents, for a response rate of 77.6%. Respondents were included in the diabetes care analyses if they responded to the 2007 diabetes section of the CCHS, were over 18 years of age and had diabetes that was not gestational (during pregnancy), resulting in a sample size of 3,769. We also used the 2005 cycle of the CCHS to compare the incidence of diabetes over time. Additional details are available upon request.

Figure 1. Percentage of population who reported a diagnosis of diabetes, by age group and by household income group, Canada, 2007‡



*Significantly different from the 18-to-34 age reference group at $p < .05$ level.

†Significantly different from the $60,000-and-over reference group at $p < .05$ 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; these account for <5% of responses overall. Household-income results have been age standardized to the 1991 Canadian population age 12 and older. Data for those between the ages of 12 and 17 are not shown (<1.0%).

Source: Canadian Community Health Survey, 2007, Statistics Canada.

Diabetes Rates: Higher among Seniors and Lower-Income Households

Diabetes is on the rise in Canada. The percentage of adults (i.e., 12 and older) who reported having diabetes was 5.1% in 2007, up from 4.3% in 2005. Older adults and adults with lower income are more likely to report having diabetes (Figure 1). One in six seniors 65 years and older reported having diabetes, which is significantly more than the one in 100 adults between the ages of 18 and 34. Adults with a household income of less than $20,000 were twice as likely to report having diabetes as adults with a household income of more than $60,000. As a corollary, Canadians with low incomes have a higher mortality rate from diabetes than do Canadians with high incomes (Lipscombe et al. 2010).

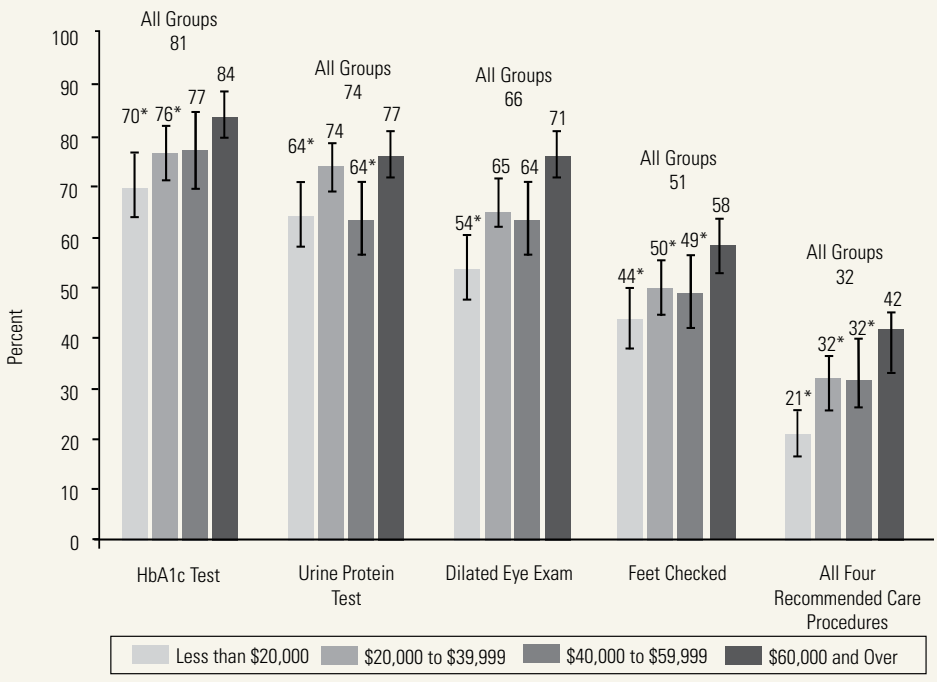
Canadians with Diabetes Not Getting the Care They Need

The 2008 *Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada* (Canadian Diabetes Association Clinical Practice Guidelines Expert Committee 2008) provides recommendations for proper and effective diabetes care. We looked at four recommended tests for patients with diabetes: (1) having one or more HbA1c (glycosylated hemoglobin) tests in the previous year to measure blood sugar levels over a period of time; (2) having a urine test for protein (an indication of kidney damage) in the previous year; (3) having a dilated eye examination in the previous two years to determine whether there is damage to the eyes; and (4) having a foot examination performed by a health professional in the previous year to check for sores or irritation. Of the four recommended tests, adults were most likely to report having an HbA1c test in the previous year (81%), but only about half of adults (51%) reported having their feet checked by a healthcare professional in the previous year (Figure 2). Only one in three Canadian adults with diabetes (32%) reported having had all four of these recommended tests performed in the previous year (Figure 2).

Adults with low household incomes (i.e., less than $20,000) were significantly less likely to receive the recommended tests from health professionals than were adults with the high household incomes (i.e., more than $60,000) (Figure 2). Adults with low household incomes were only half as likely as adults with high household incomes to have received all four recommended tests (42% versus 21%; Figure 2).

Adults with diabetes are at higher risk for mortality and morbidity from influenza; consequently, diabetics are encouraged to receive an influenza vaccination annually (Canadian Diabetes Association Clinical Practice Guidelines Expert Committee 2008). Only 62% of adults with diabetes reported having had an influenza vaccination in the past year.

Figure 2. Age-standardized percentage of adults 18 and older with diabetes who received recommended tests, by household income, Canada, 2007*



*Significantly different from the $60,000-and-over reference group at $p<.05$ level include all Canadian adults who reported having diabetes. Unknown responses (missing responses, refused to answer or "don't know") were excluded from the analysis by income group but were included in the analyses of all groups. Unknown responses account for <5% of responses for each question individually and for ~10% for all four recommended care procedures combined. Age-standardized to the 2007 Canadian population 18 and older with non-gestational diabetes.

Source: Canadian Community Health Survey, 2007, Statistics Canada.

Canadians with low household incomes are a vulnerable population because they have a higher prevalence of diabetes but are less likely to receive the recommended care.

Self-Care: Are Canadians Following Through on Diabetes Care?

Two self-care activities for diabetics include self-monitoring of blood sugar levels and checking feet for cuts, cracks, bruises, blisters, sores and infections (Canadian Diabetes Association Clinical Practice Guidelines Expert Committee 2008). By regularly performing self-care activities, patients reduce the likelihood of developing diabetic complications such as foot ulcers and amputations. Only half of adults with diabetes check their blood sugar levels daily, and only about two in five adults with diabetes check their feet daily (Figure 3).

Health Policy Implications

The prevalence and costs of diabetes are on the rise in Canada. Many Canadians with diabetes are not receiving recommended care from healthcare professionals and should be conducting self-care activities with greater regularity. Canadians with low household incomes are a vulnerable population because they have a higher prevalence of diabetes but are less likely to receive the recommended care for diabetes than are Canadians with higher household incomes.

The implementation of information technology such as electronic medical records has been shown to help clinicians improve outcomes and adherence to recommended care guidelines for patients with diabetes (Orzano et al. 2007; Weber et al. 2008). For example, electronic medical records can automate reminders for recommended care (Weber et al. 2008) and support increased coordination of care between health professionals (MacPhail et al. 2009). Some other potentially beneficial interventions to increase adherence to care guidelines include longer primary care appointments, reminder phone calls to patients and the use of flow sheets based on diabetes care guidelines (Lin et al. 2007).

It is clear that more effective policies and programs to prevent or at least delay the onset of diabetes are needed. More effective policies and programs are also needed to ensure that Canadians with diabetes are getting the recommended care and enough support for self-care. Bending the cost curve downward is possible with progress on these fronts. Failure to succeed will result in more Canadians having diabetes and more diabetes-related complications. HQ

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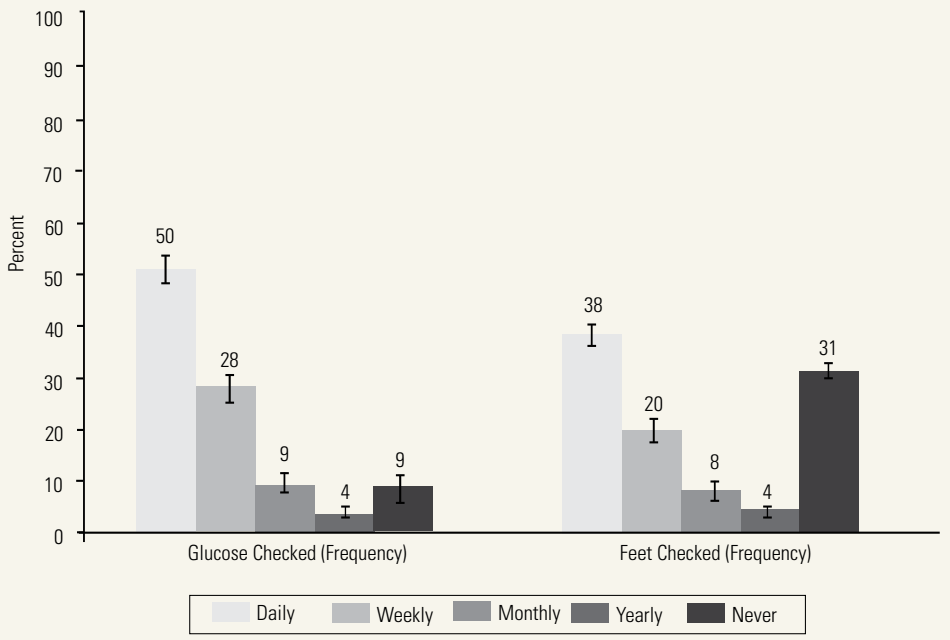
Figure 3. Percentage of adults 18 and older with diabetes who had checked their blood glucose and their feet,* Canada, 2007†



*Who checked their feet themselves or had their feet checked by a family member or friend.

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

Source: Canadian Community Health Survey, 2007, Statistics Canada.

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