The Growing Prevalence of Diabetes in Ontario: Are We Prepared?

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The Issue

The number of persons with diabetes worldwide has increased dramatically over the past 20 years, making it one of the most burdensome diseases of our time. It is one of the leading causes of blindness and end-stage renal disease, and an important cause of cardiovascular complications. Furthermore, the treatment is complex and costly, with the direct healthcare costs of diabetes ranging from 2.5 to 15% of health budgets.

Rates of diabetes are expected to continue to increase over time. The World Health Organization (WHO) predicted that the global diabetes prevalence rate among adults would reach 6.4% by 2030, representing a 60% increase since 1995 and a 39% rise from 2000. However, these projections may be underestimates as they were based on an unwarranted assumption that obesity rates would remain constant.

In a recent study, scientists at Ontario's Institute for Clinical Evaluative Sciences (ICES) described trends in diabetes prevalence, incidence and mortality in Ontario, from 1994/95 (April 1, 1994 to March 31, 1995) to 2004/05 (April 1, 2004 to March 31, 2005).

Between 1994/95 and 2004/05, diabetes prevalence among adults rose 69%.

Table 1. Diabetes prevalence rates in Ontarians aged 20 years and older, by age group and sex

		1994/95		1999/00		2004/05	
	Age Group (yrs)	No. of Persons with Diabetes	Prevalence Rate (%)	No. of Persons with Diabetes	Prevalence Rate (%)	No. of Persons with Diabetes	Prevalence Rate (%)
Women	20–49	43,472	1.7	67,809	2.6	98,904	3.5
	50+	143,834	9.5	212,262	12.4	301,457	15.4
	All ages†	187,306	4.6	280,071	6.5	400,361	8.4
Men	20–49	49,305	1.9	71,463	2.7	98,474	3.5
	50+	151,822	11.8	229,197	15.5	328,584	19.1
	All ages†	201,127	5.2	300,660	7.3	427,058	9.4
Overall	20–49	92,777	1.8	139,272	2.6	197,378	3.5
	50+	295,656	10.6	441,459	13.9	630,041	17.1
	All ages†	388,433	5.2*	580,731	6.9*	827,419	8.8*

*Age- and sex-adjusted using 2001 Census data.
†Those aged 20 years and older.

The Study

Ontarians aged 20 years and older diagnosed with diabetes between April 1, 1994, and March 31, 2005, were identified from the Ontario Diabetes Database (ODD) – a registry of Ontario residents diagnosed with diabetes, validated from administrative healthcare databases held at ICES. Any individual having one hospitalization record or two physician billing claims bearing a diabetes diagnosis within two years was included in the ODD. For prevalence rates, the number of persons recorded in the ODD was divided by population census counts for each fiscal year. Annual incidence rates were calculated using the number of new cases entering the ODD each year – only available from 1996/97 to 2002/03. All-cause mortality rates were calculated using the annual number of deaths among persons in the ODD.

Key Findings

Diabetes Prevalence

Between 1994/95 and 2004/05, diabetes prevalence among adults rose 69%, from 5.2 to 8.8% (Table 1). By 2004/05, over nine million Ontarians were diagnosed with diabetes, representing an increase of 113% over the decade. Although diabetes rates remained lower in younger versus older persons, those aged 20–49 years had the greatest rise in diabetes (94%).

Role of Incidence and Mortality Changes

The rise in diabetes prevalence was due to both an increase in new cases and a decline in deaths among patients with diabetes. The annual incidence rate increased by 31%, and the mortality rate decreased by 25% over the study period (Figure 1).

What Do These Findings Mean?

The prevalence of diabetes in Ontario has increased dramatically over the past decade and has already exceeded the global increase that was projected to occur by 2030. This increase is attributable to a combination of increasing incidence (likely driven by rising obesity rates) and declining mortality (due to better diabetes treatment). Rising immigration to Ontario of more susceptible populations, such as persons from South Asia, may have also contributed to these findings. Rates grew most rapidly among young persons, which is of particular concern as they have longer to live with the disease and a greater opportunity to develop complications.

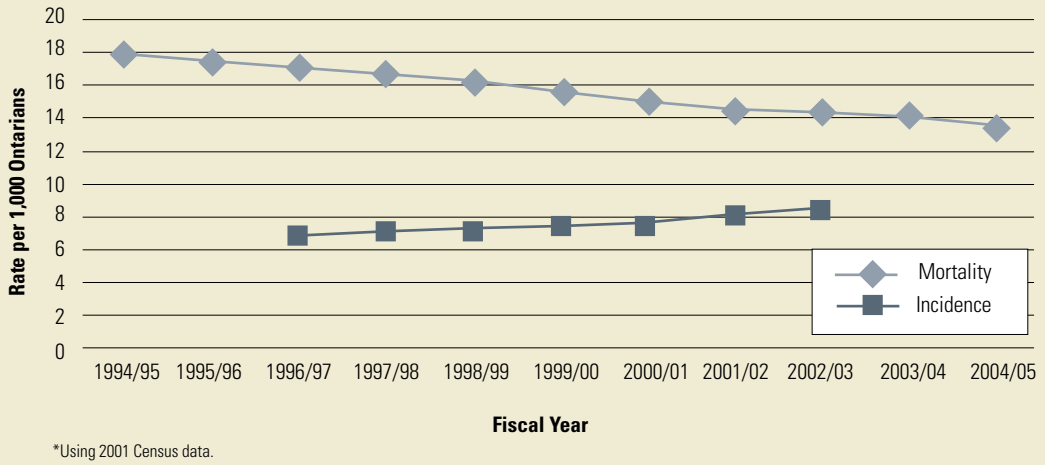
The Growing Burden of Diabetes

Given this linear growth in prevalence, it is projected that more than 10% of adult Ontarians will be diagnosed with diabetes before 2010. If similar trends are occurring throughout the developed world, then the magnitude of the emerging diabetes epidemic is far greater than has been anticipated.

Are We Prepared?

Policy makers will need to adequately prepare for the rising burden of new and existing diabetes cases on healthcare resources. Our current healthcare system will have increasing difficulty in meeting the chronic healthcare needs of patients with diabetes, and new models of care for diabetes, such as an inter-professional team approach, will have to be explored. However, as more people develop diabetes, the gains that we make in diabetes outcomes will be overtaken by the sheer number of persons who need care. Thus, there is an urgent need for primary prevention

Figure 1. Age- and sex-adjusted* diabetes incidence rate (1996–1997 to 2002–2003) and mortality rate (1994–1995 to 2004–2005) per 1,000 Ontarians aged 20 years and older



*Using 2001 Census data.

strategies. Although diabetes can be prevented through lifestyle changes aimed at increasing activity and improving diet, providing these interventions on an individual basis may not be feasible. Given the magnitude of the problem, a population approach to prevention is necessary. Prevention strategies should include: identifying high-risk populations and their modifiable risk factors; optimizing urban planning and resource availability to address our diabetogenic environment; and public education to promote healthier lifestyles for Canadians.

ICES *inTool*

To this end, ICES has recently launched the *inTool*, an interactive web-based approach to providing instant information about diabetes incidence, prevalence and mortality rates in Ontario (among other relevant healthcare topics). The *inTool*, available at www.ices.on.ca/intool, allows comparisons of the burden of diabetes in Local Health Integration Networks (LHINs) compared with Ontario as a whole, as well as between LHINs. Thus, the information can be used to support local evidence-based decision-making for diabetes care across the province.

Conclusion

If we allow diabetes rates to continue to rise, not only will the health of our population continue to decline but also our healthcare system will very soon be crippled with the disproportionate demands of chronic diabetes care. As such, urgent preventive measures aimed at reducing obesity rates are sorely needed in order to stem this diabetes epidemic. HQ

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