



Health and
Wellness

Prince Edward Island Diabetes Trends

2000-2006



ONE ISLAND FUTURE

ONE ISLAND HEALTH SYSTEM

April 2010
Chief Health Office, Epidemiology Unit

Available on the Prince Edward Island Department of Health and Wellness Website:
www.gov.pe.ca/health

Key Messages

The age-standardized prevalence of diagnosed diabetes increased by almost 40%, from 3.9% in 2000 to 5.3% in 2006.

The percent of people living with diabetes in PEI and in Canada are similar however both are increasing over time.

The number of new cases of diabetes (incidence) between 2000 and 2006 has remained relatively constant over time with an average of 842 new cases per year (5.7 new cases per 1,000 Islanders).

In 2006, the prevalence of diabetes in males (8.0%), aged 20 and over, is significantly higher than females (6.1%).

Diabetes is more prevalent in our older population. Diabetes prevalence rates increase with age in both genders, rising considerably after age 34.

Adults aged 20 years and over with diabetes were hospitalized more often than those without diabetes including 16 times more often with lower limb amputations; 6 times more often with chronic kidney disease; 5 times more often with heart attacks; 4 times more often with heart failure and ischaemic heart disease; 3 times more often with strokes.

In the last six years, death rates for adult Islanders with diabetes have been about twice as high as adults without diabetes.

In 2006, Islanders with diabetes had hospital stays 3 times longer than Islanders hospitalized without diabetes. They also had 2 times as many visits to family physicians and 2 times as many visits to specialists.

Table of Contents

Introduction 3

Methods Used..... 3

People Living with Diabetes 4

Risk Factors for Diabetes 8

Complications 8

Deaths among People with Diagnosed Diabetes..... 8

Health Service Utilization 8

Recommendations 9

Appendix – Data Tables..... 10

Introduction

Diabetes is a chronic condition that stems from the body's inability to produce and/or properly use insulin. The body needs insulin to use sugar as an energy source. Diabetes can lead to serious complications and premature death. Proper management of diabetes can lower the risk of complications. There are two types of diabetes called type 1 and type 2. Type 1 occurs when the beta cells in the pancreas no longer produce insulin. There is no way to prevent type 1 diabetes. Type 2, on the other hand, may be prevented or delayed in some cases. It occurs when the body does not make enough insulin or does not respond well to insulin. The risk of developing type 2 diabetes can be reduced by making healthy lifestyle choices such as having a healthy diet, exercising regularly and especially losing excess weight. Although this report does not break down type 1 or type 2 diabetes it is estimated that the majority of diabetes cases (90-95%) are type 2.¹ It is hoped that this document will provide a picture of diabetes in Prince Edward Island so that policymakers, researchers, health practitioners and the general public can make informed public and personal health decisions.

Methods Used

Information for this report is based on the Canadian Chronic Disease Surveillance System (CCDSS)², coordinated by the Public Health Agency of Canada. This surveillance system links the Prince Edward Island health insurance registry database with physician billing and hospitalization data. To be considered a diabetes case within this surveillance system, a person would have had one hospitalization with a diagnosis of *Diabetes mellitus* or have had at least two physician visits with a diagnosis of *Diabetes mellitus* within a two year period. Women with gestational diabetes are not included in this surveillance system. Age standardization of prevalence rates occurs to account for differences in age distributions from place to place and time to time.

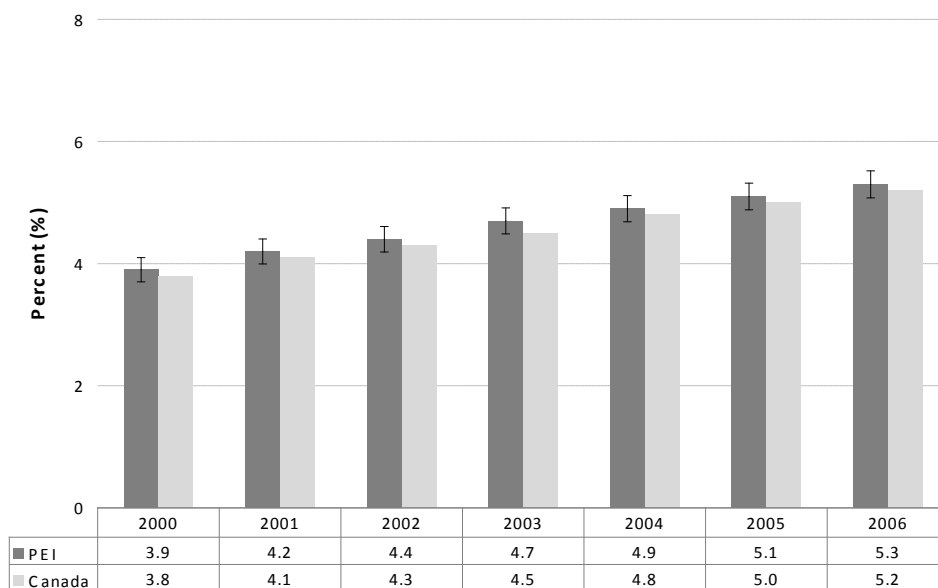
¹ Centers for Disease Control and Prevention. (2005). *National diabetes fact sheet: national estimates and general information on diabetes in the United States*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

² Public Health Agency of Canada. (2010). National Diabetes Surveillance System. Retrieved March, 2010 from: <http://www.phac-aspc.gc.ca/ccdpc-cpcmc/ndss-snsd/english/index-eng.php>

People Living With Diabetes

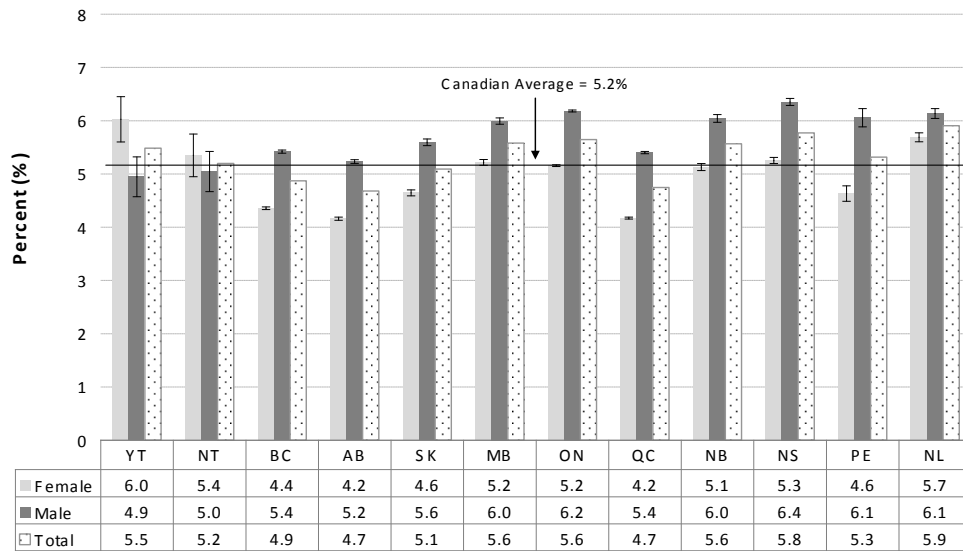
The percent of Islanders, aged one year of age and older, who have been diagnosed with diabetes (prevalence) rose from 3.9% in 2000 to 5.3% in 2006, an increase of 36% in the last six years. Because symptoms can develop gradually and complications can take years to develop, many more Islanders are likely to have undetected or undiagnosed diabetes.³ The percent of people living with diabetes in PEI and in Canada are similar however both are increasing over time. This makes diabetes a continually growing health concern.

Diabetes Prevalence, Aged 1+, Age-Standardized



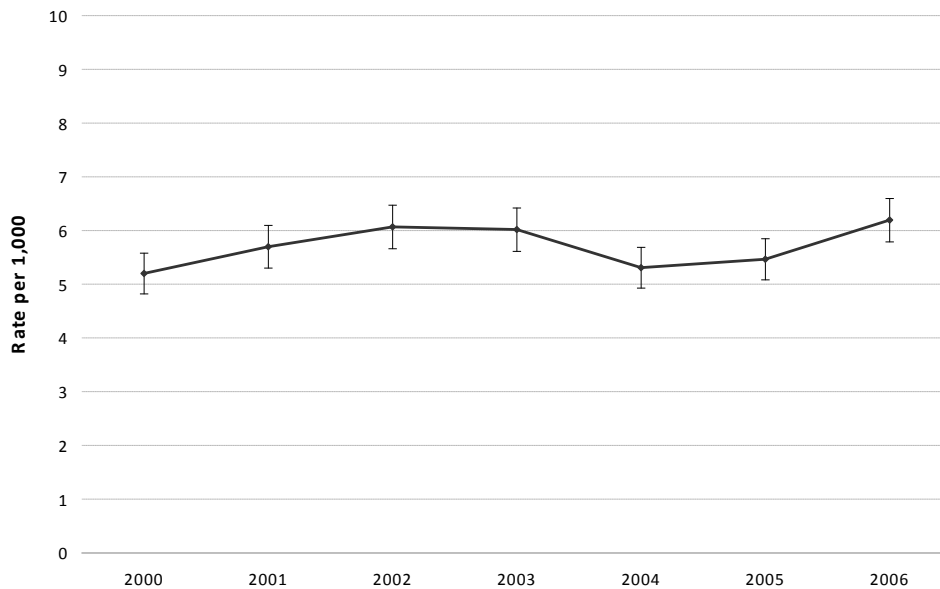
³ Centers for Disease Control and Prevention (CDC). (2003). Prevalence of diabetes and impaired fasting glucose in adults--United States. *MMWR Morb Mortal Wkly Rep*, 52(35), 833-7.

**Diabetes Prevalence by Province and Territory,
Aged 1+, Age-Standardized, 2006**



After adjusting for differences in age distributions between provinces and territories, the prevalence of diagnosed diabetes was found to be higher than the Canadian average (5.2) in Newfoundland and Labrador, Nova Scotia, Manitoba, Ontario and New Brunswick. Prevalence was lower in Alberta, British Columbia, Saskatchewan and Quebec. Prince Edward Island, Northwest Territories and Yukon Territories had similar prevalence to Canada. Males had a higher diabetes prevalence than females in all provinces. Yukon females had a higher prevalence and no gender difference was observed in the Northwest Territories.

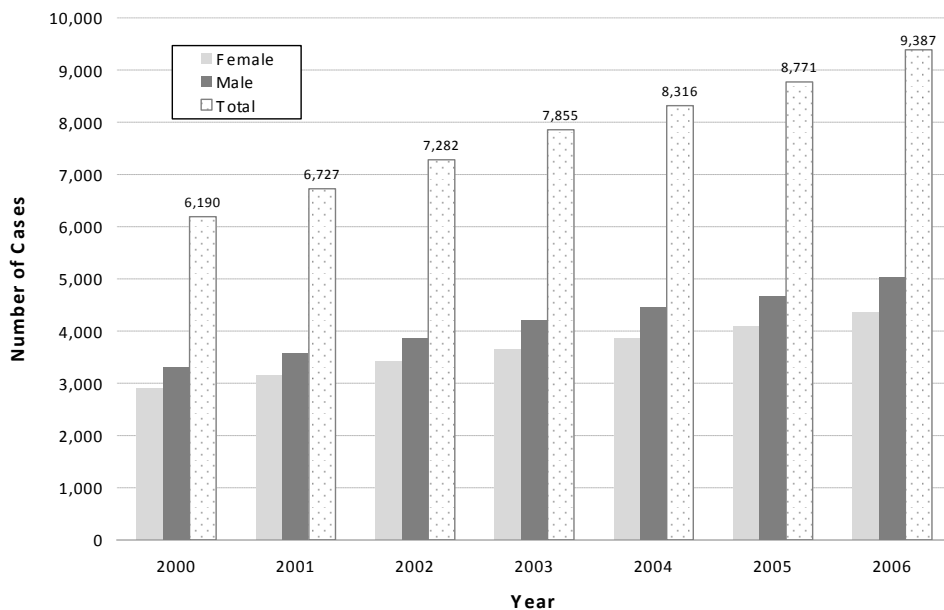
**Diabetes Incidence, Aged 1+,
Age-Standardized, PEI**



The number of new cases of diabetes (incidence) between 2000 and 2006 has remained relatively constant over time with an average of 842 new cases per year (5.7 new cases per 1,000 Islanders). Males consistently have a higher incidence than females (Appendix, Table, 6). Each year, incidence is typically higher for age groupings above 55 years and continues to increase until 64 years of age (Appendix, Table 7).

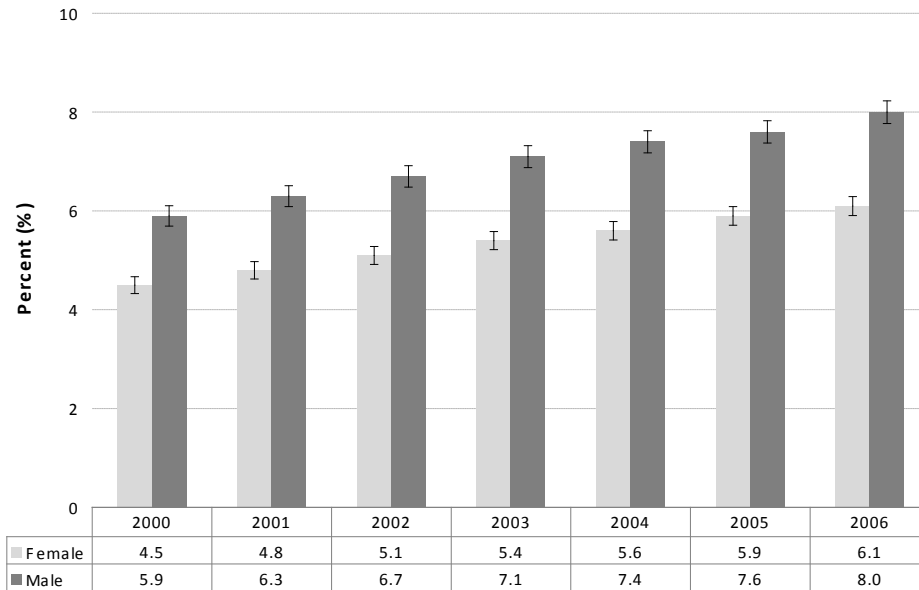
In 2000 there were approximately 6,200 Islanders living with diabetes; by 2006 there were almost 9,400, one and a half times as many Islanders. The percentage of males living with diabetes has been consistently higher than females.

**Actual Number of Diabetes Cases,
Aged 1+, PEI**



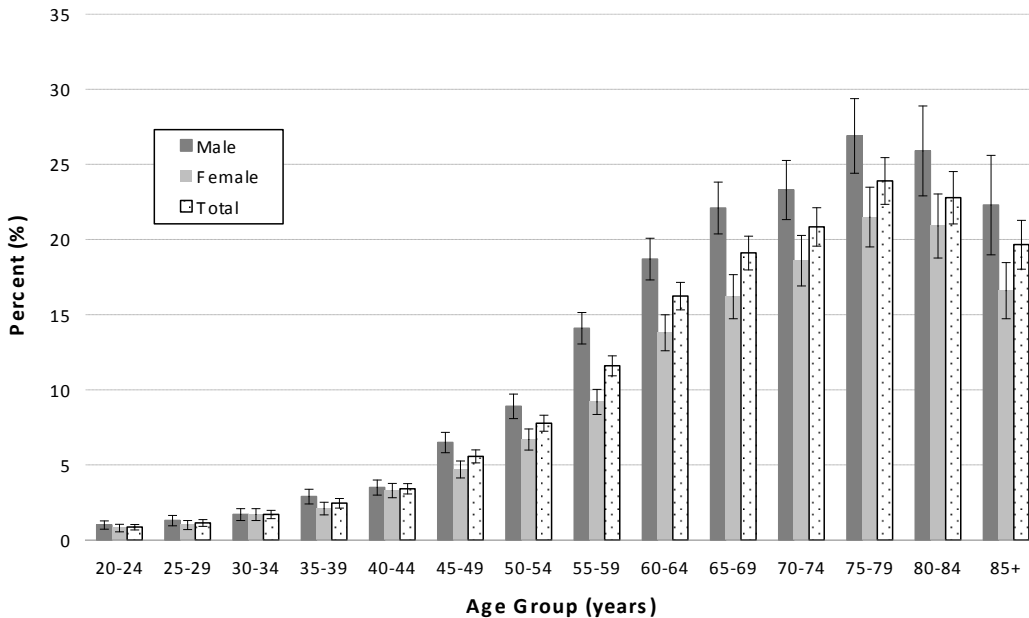
In 2006, the prevalence of diabetes in males (8.0%), aged 20 and over, is significantly higher than females (6.1%). This trend has remained consistent over time. Essentially, 1 in 13 adult males and 1 in 17 adult females have been diagnosed with diabetes.

**Diabetes Prevalence, Aged 20 +,
Age-S standardized, PEI**



Diabetes is more prevalent in our older population. Diabetes prevalence increases with age in both genders, rising considerably after age 35. In 2006, prevalence peaked in the 75-79 age grouping representing 24% of Islanders in this age group. This is a large increase compared to the 20-29 age grouping which has a prevalence rate of approximately 1%.

Age-Specific Diabetes Prevalence, 2006, PEI



Risk Factors for Diabetes

A person's risk of developing diabetes can increase with certain conditions and characteristics. Some of these risk factors, such as age and family history, are not changeable. Other risk factors such as overweight or obesity, high blood pressure, low HDL (or good) cholesterol, high triglyceride levels and lack of physical activity can be controlled and can prevent, delay or reverse the development of type 2 diabetes. Being obese or overweight is the number one modifiable risk factor for diabetes. Despite many health initiatives promoting the importance of healthy eating, healthy weight and physical activity, PEI continues to have a high proportion of overweight and obese individuals. In 2007/08, 37% of Island residents were overweight and 24% were obese (based on self-reported height and weight).⁴ More males (68%) reported being overweight or obese than females (53%). There also was a significant increase in the proportion of overweight or obese people in the 35-49 age grouping (67%) compared to the 18-34 age grouping (49%).

Complications

In 2006, the most common health problem seen in hospitalizations among Islanders with diagnosed diabetes was cardiovascular disease. Adults aged 20 years and over with diabetes were hospitalized more often than their counterparts without diabetes including:

- 16 times more often with lower limb amputations;
- 6 times more often with chronic kidney disease;
- 5 times more often with heart attacks;
- 4 times more often with heart failure and ischaemic heart disease;
- 3 times more often with strokes.

Deaths among People with Diagnosed Diabetes (Mortality)

In the last six years, death rates for adult Islanders with diabetes have been about twice as high as adults without diabetes. These figures have been adjusted to account for age differences of the population between years. In 2006, over 35% of people who died and had diabetes were under the age of 75 years old.

Health Services Utilization

In 2006, Islanders with diabetes stayed 3 times longer in hospital than Islanders hospitalized without diabetes. They also had 2 times as many visits to family physicians and 2 times as many visits to specialists. Family physician visits for people with diabetes have been stable at about 10 visits per year.

⁴ Prince Edward Island Department of Health and Wellness, Epidemiology Unit. (2010). Prince Edward Island Health Trends, 2010. Document Publishing Center, Charlottetown. Available from: www.gov.pe.ca/health

Recommendations

Diabetes is a growing health concern. There are steps that all Islanders can take to ensure a healthy lifestyle, which in turn prevents or delays type 2 diabetes and the health complications of diabetes. The risk of developing type 2 diabetes can be reduced by making lifestyle choices such as having a healthy diet, exercising regularly and maintaining a healthy weight.

Choices about how active we are and what we eat are affected by our social, cultural, economic and physical environments. In our community we need to look at the root cause of the factors affecting our behaviors and ensure that these factors are incorporated into any mix of action plans we do as a community. We will not prevent or reduce diabetes in Prince Edward Island without addressing what inequalities exist within our community (e.g. education, income, age, living and working conditions, built environments, mental wellbeing) and how they affect our health behaviors and outcomes. An approach which involves solutions, inputs and efforts from our entire community would be the most beneficial. Healthy food and physical activity choices need to be available and reinforced in all of our everyday environments where adults and children work, learn, live and play.

The Department of Health and Wellness, along with community partners, continue to apply the best available evidence to support and promote self management, track and report health outcomes and link people to community based health promotion resources. Population wide public health initiatives addressing healthy eating and physical activity strategies are vital to prevent and reduce type 2 diabetes and its health complications. Screening and detection of obesity, pre-diabetes and diabetes in our community should also be emphasized.

Appendix – Data Tables

Table 1. Diabetes Prevalence, Aged 1+, PEI and Canada

Gender	Year	PEI						Canada	
		Population with Diabetes	Population Total	%	CI	Age-Standardized %	CI	Age-Standardized %	CI
Female	2000	2893	71594	4.0	3.9-4.2	3.4	3.2-3.5	3.4	3.4-3.4
	2001	3151	71616	4.4	4.2-4.6	3.6	3.5-3.8	3.7	3.6-3.6
	2002	3413	71625	4.8	4.6-4.9	3.9	3.7-4.0	3.9	3.9-3.9
	2003	3656	72332	5.1	4.9-5.2	4.1	3.9-4.2	4.1	4.1-4.1
	2004	3864	72699	5.3	5.1-5.5	4.2	4.1-4.4	4.3	4.3-4.3
	2005	4097	72727	5.6	5.5-5.8	4.4	4.3-4.6	4.5	4.5-4.5
	2006	4357	72918	6.0	5.8-6.2	4.6	4.5-4.8	4.7	4.7-4.7
Male	2000	3297	69411	4.7	4.6-4.9	4.5	4.3-4.6	4.3	4.2-4.3
	2001	3576	69208	5.2	5.0-5.3	4.8	4.6-5.0	4.5	4.5-4.6
	2002	3869	69073	5.6	5.4-5.8	5.1	4.9-5.2	4.8	4.8-4.8
	2003	4199	69758	6.0	5.8-6.2	5.4	5.2-5.5	5.0	5.0-5.0
	2004	4452	69956	6.4	6.2-6.6	5.6	5.4-5.8	5.3	5.3-5.3
	2005	4674	69913	6.7	6.5-6.9	5.8	5.6-5.9	5.5	5.5-5.5
	2006	5030	70234	7.2	7.0-7.4	6.1	5.9-6.2	5.8	5.8-5.8
Total	2000	6190	141005	4.4	4.3-4.5	3.9	3.8-4.0	3.8	3.8-3.8
	2001	6727	140824	4.8	4.7-4.9	4.2	4.1-4.3	4.1	4.1-4.1
	2002	7282	140698	5.2	5.1-5.3	4.4	4.3-4.5	4.3	4.3-4.3
	2003	7855	142090	5.5	5.4-5.7	4.7	4.6-4.8	4.5	4.5-4.5
	2004	8316	142655	5.8	5.7-6.0	4.9	4.8-5.0	4.8	4.7-4.8
	2005	8771	142640	6.1	6.0-6.3	5.1	5.0-5.2	5.0	5.0-5.0
	2006	9387	143152	6.6	6.4-6.7	5.3	5.2-5.4	5.2	5.2-5.2

Table 2. Age-Specific Diabetes Prevalence, PEI Population, Aged 1+, 2006

Age Grouping	Female	CI	Male	CI	Total	CI
1 to 19	0.5	0.4-0.6	0.7	0.6-0.9	0.6	0.5-0.7
20 to 24	0.8	0.5-1.0	1.0	0.7-1.3	0.9	0.7-1.1
25 to 29	1.0	0.7-1.3	1.3	1.0-1.7	1.1	0.9-1.4
30 to 34	1.7	1.3-2.1	1.7	1.3-2.1	1.7	1.4-2.0
35 to 39	2.1	1.7-2.5	2.8	2.4-3.4	2.5	2.2-2.8
40 to 44	3.3	2.9-3.8	3.5	3.1-4.1	3.4	3.1-3.8
45 to 49	4.7	4.2-5.3	6.5	5.8-7.2	5.6	5.1-6.0
50 to 54	6.7	6.0-7.4	8.9	8.1-9.7	7.8	7.3-8.3
55 to 59	9.2	8.4-10.1	14.0	13.0-15.1	11.6	11.0-12.3
60 to 64	13.8	12.7-15.1	18.7	17.3-20.1	16.2	15.3-17.2
65 to 69	16.2	14.7-17.7	22.1	20.4-23.9	19.1	18.0-20.3
70 to 74	18.6	17.0-20.4	23.3	21.4-25.3	20.8	19.6-22.1
75 to 79	21.5	19.6-23.5	26.9	24.5-29.5	23.9	22.4-25.5
80 to 84	20.8	18.8-23.1	25.9	23.0-29.0	22.8	21.1-24.6
>=85	18.6	16.8-20.6	22.3	19.2-25.8	19.7	18.1-21.3

Table 3. Age-Specific Diabetes Prevalence, Canadian Population, Aged 1+, 2006

Age Grouping	Female	CI	Male	CI	Total	CI
1 to 19	0.3	0.3-0.3	0.3	0.3-0.3	0.3	0.3-0.3
20 to 24	0.7	0.7-0.7	0.6	0.6-0.6	0.7	0.6-0.7
25 to 29	1.1	1.1-1.1	0.8	0.8-0.9	1.0	0.9-1.0
30 to 34	1.7	1.7-1.8	1.4	1.4-1.4	1.6	1.6-1.6
35 to 39	2.5	2.5-2.5	2.4	2.4-2.4	2.4	2.4-2.5
40 to 44	3.4	3.4-3.5	3.8	3.7-3.8	3.6	3.6-3.6
45 to 49	4.7	4.7-4.8	5.8	5.7-5.8	5.3	5.2-5.3
50 to 54	7.0	6.9-7.0	9.0	9.0-9.1	8.0	8.0-8.0
55 to 59	10.2	10.1-10.2	13.5	13.5-13.6	11.8	11.8-11.9
60 to 64	13.4	13.3-13.4	18.1	18.0-18.2	15.7	15.6-15.8
65 to 69	16.8	16.7-16.9	22.4	22.2-22.5	19.5	19.4-19.6
70 to 74	19.7	19.6-19.8	25.0	24.9-25.2	22.2	22.1-22.3
75 to 79	21.3	21.1-21.4	26.1	26.0-26.3	23.4	23.3-23.5
80 to 84	21.1	21.0-21.3	25.4	25.2-25.6	22.8	22.7-22.9
>=85	17.8	17.7-18.0	20.9	20.7-21.1	18.8	18.7-18.9

Table 4. Diabetes Prevalence, Aged 20+, PEI

Gender	Year	PEI					
		Population with Diabetes	Population Total	%	CI	Age-Standardized %	CI
Female	2000	2833	53527	5.3	5.1-5.5	4.5	4.3-4.6
	2001	3090	53847	5.7	5.5-5.9	4.8	4.6-5.0
	2002	3355	54167	6.2	6.0-6.4	5.1	5.0-5.3
	2003	3591	54987	6.5	6.3-6.7	5.4	5.2-5.6
	2004	3790	55541	6.8	6.6-7.0	5.6	5.4-5.8
	2005	4017	55870	7.2	7.0-7.4	5.9	5.7-6.1
	2006	4275	56363	7.6	7.4-7.8	6.1	5.9-6.3
Male	2000	3206	50602	6.3	6.1-6.6	5.9	5.7-6.1
	2001	3483	50679	6.9	6.6-7.1	6.3	6.1-6.6
	2002	3768	50846	7.4	7.2-7.7	6.7	6.5-6.9
	2003	4087	51673	7.9	7.7-8.2	7.1	6.9-7.3
	2004	4342	52070	8.3	8.1-8.6	7.4	7.2-7.6
	2005	4559	52501	8.7	8.4-8.9	7.6	7.4-7.9
	2006	4903	53094	9.2	9.0-9.5	8.0	7.8-8.2

Prince Edward Island Diabetes Trends

Table 5. Diabetes Prevalence, Aged 1+, Canadian Provinces and Canada, 2006

Gender	Area	Population with Diabetes	Population Total	%	CI	Age-Standardized %	CI
Female	AB	76214	1705914	4.5	4.4-4.5	4.2	4.1-4.2
	BC	120902	2172062	5.6	5.5-5.6	4.4	4.3-4.4
	MB	38040	604653	6.3	6.2-6.4	5.2	5.2-5.3
	NB	26028	382292	6.8	6.7-6.9	5.1	5.1-5.2
	NL	18913	257795	7.3	7.2-7.4	5.7	5.6-5.8
	NS	34420	500143	6.9	6.8-7.0	5.3	5.2-5.3
	NT	874	22306	3.9	3.7-4.2	5.4	5.0-5.8
	ON	428131	6828299	6.3	6.3-6.3	5.2	5.1-5.2
	PE	4357	72918	6.0	5.8-6.2	4.6	4.5-4.8
	QC	215729	3835536	5.6	5.6-5.6	4.2	4.2-4.2
	SK	29251	512654	5.7	5.6-5.8	4.6	4.6-4.7
	YT	946	16237	5.8	5.5-6.2	6.0	5.6-6.5
	CAN	993805	16910809	5.9	5.9-5.9	4.7	4.7-4.7
Male	AB	88959	1706993	5.2	5.2-5.2	5.2	5.2-5.3
	BC	138822	2124936	6.5	6.5-6.6	5.4	5.4-5.5
	MB	39273	590622	6.6	6.6-6.7	6.0	5.9-6.1
	NB	27314	369639	7.4	7.3-7.5	6.0	6.0-6.1
	NL	18438	247703	7.4	7.3-7.6	6.1	6.0-6.2
	NS	36849	475286	7.8	7.7-7.8	6.4	6.3-6.4
	NT	942	23785	4.0	3.7-4.2	5.0	4.7-5.4
	ON	466089	6685693	7.0	7.0-7.0	6.2	6.2-6.2
	PE	5030	70234	7.2	7.0-7.4	6.1	5.9-6.2
	QC	237762	3737142	6.4	6.3-6.4	5.4	5.4-5.4
	SK	32081	505863	6.3	6.3-6.4	5.6	5.5-5.7
	YT	848	16817	5.0	4.7-5.4	4.9	4.6-5.3
	CAN	1092407	16554713	6.6	6.6-6.6	5.8	5.8-5.8
Total	AB	165173	3412907	4.8	4.8-4.9	4.7	4.7-4.7
	BC	259724	4296998	6.0	6.0-6.1	4.9	4.9-4.9
	MB	77313	1195275	6.5	6.4-6.5	5.6	5.5-5.6
	NB	53342	751931	7.1	7.0-7.2	5.6	5.5-5.6
	NL	37351	505498	7.4	7.3-7.5	5.9	5.8-6.0
	NS	71269	975429	7.3	7.3-7.4	5.8	5.7-5.8
	NT	1816	46091	3.9	3.8-4.1	5.2	4.9-5.5
	ON	894220	13513992	6.6	6.6-6.6	5.6	5.6-5.7
	PE	9387	143152	6.6	6.4-6.7	5.3	5.2-5.4
	QC	453491	7572678	6.0	6.0-6.0	4.7	4.7-4.8
	SK	61332	1018517	6.0	6.0-6.1	5.1	5.1-5.1
	YT	1794	33054	5.4	5.2-5.7	5.5	5.2-5.8
	CAN	2086212	33465522	6.2	6.2-6.2	5.2	5.2-5.2

Table 6. Diabetes Incidence, Aged 1+, PEI

PEI				
Gender	Year	Incident cases	Incidence per 1,000 Age-Standardized	CI
Female	2000	341	4.4	4.0-4.9
	2001	394	5.2	4.7-5.7
	2002	398	5.1	4.6-5.6
	2003	402	5.1	4.6-5.6
	2004	357	4.5	4.1-5.0
	2005	373	4.7	4.2-5.2
	2006	397	5.0	4.5-5.5
Male	2000	408	6.0	5.4-6.6
	2001	424	6.3	5.7-6.9
	2002	491	7.1	6.5-7.8
	2003	485	7.1	6.5-7.7
	2004	431	6.2	5.6-6.8
	2005	445	6.3	5.7-6.9
	2006	548	7.6	7.0-8.3
Total	2000	749	5.2	4.8-5.6
	2001	818	5.7	5.3-6.1
	2002	889	6.1	5.7-6.5
	2003	887	6.0	5.6-6.4
	2004	788	5.3	4.9-5.7
	2005	818	5.5	5.1-5.9
	2006	945	6.2	5.8-6.6

Table 7. Age-Specific Diabetes Incidence (per 1,000), PEI Population, Aged 1+, 2006

Age Grouping	Female	CI	Male	CI	Total	CI
1 to 19	0.8	0.4-1.3	1.1	0.6-1.7	0.9	0.6-1.3
20 to 24	1.2	0.4-2.6	-	-	0.9	0.4-1.7
25 to 29	1.3	0.5-2.9	1.1	0.4-2.6	1.2	0.6-2.2
30 to 34	3.0	1.6-5.1	1.6	0.6-3.3	2.3	1.4-3.5
35 to 39	2.3	1.2-4.2	3.7	2.1-5.9	3.0	2.0-4.3
40 to 44	4.1	2.6-6.2	3.9	2.4-6.0	4.0	2.9-5.4
45 to 49	5.9	4.1-8.3	7.9	5.7-10.7	6.9	5.4-8.7
50 to 54	7.7	5.5-10.6	10.5	7.8-13.8	9.1	7.3-11.2
55 to 59	12.2	9.2-15.7	21.1	17.1-25.9	16.5	14.0-19.3
60 to 64	16.2	12.1-21.1	30.7	24.9-37.4	23.3	19.7-27.3
65 to 69	16.7	12.0-22.5	29.1	22.6-36.9	22.7	18.6-27.3
70 to 74	16.2	11.3-22.6	26.8	19.9-35.3	21.1	16.9-26.1
75 to 79	14.7	9.5-21.7	33.0	23.9-44.5	22.6	17.6-28.7
80 to 84	14.4	8.9-22.0	21.9	13.2-34.2	17.2	12.3-23.4
>=85	10.4	6.2	18.6	19.2-25.8	12.6	18.1-21.3

- The counts and rates were suppressed when the statistic was fewer than 5 cases (represented by a hyphen). However, when the statistic was 0, it was presented.

