

PREVENTION IS BETTER THAN
CURE; SWEET STEPS
TOGETHER FOR A DIABETES
FREE ONTARIO

DIABETES PREVENTION

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Purpose



The goal of our discussion today is threefold:

- 1) Understand the scope and impact of diabetes in Ontario
- 2) Examine the current prevention efforts at the federal, provincial and the municipal levels
- 3) Discuss potential evidence-based solutions for the prevention of type II diabetes

Overview of Diabetes

Diabetes is a chronic condition characterized by the body's inability to effectively use the insulin it produces or an absolute deficiency in insulin, leading to high blood sugar levels.

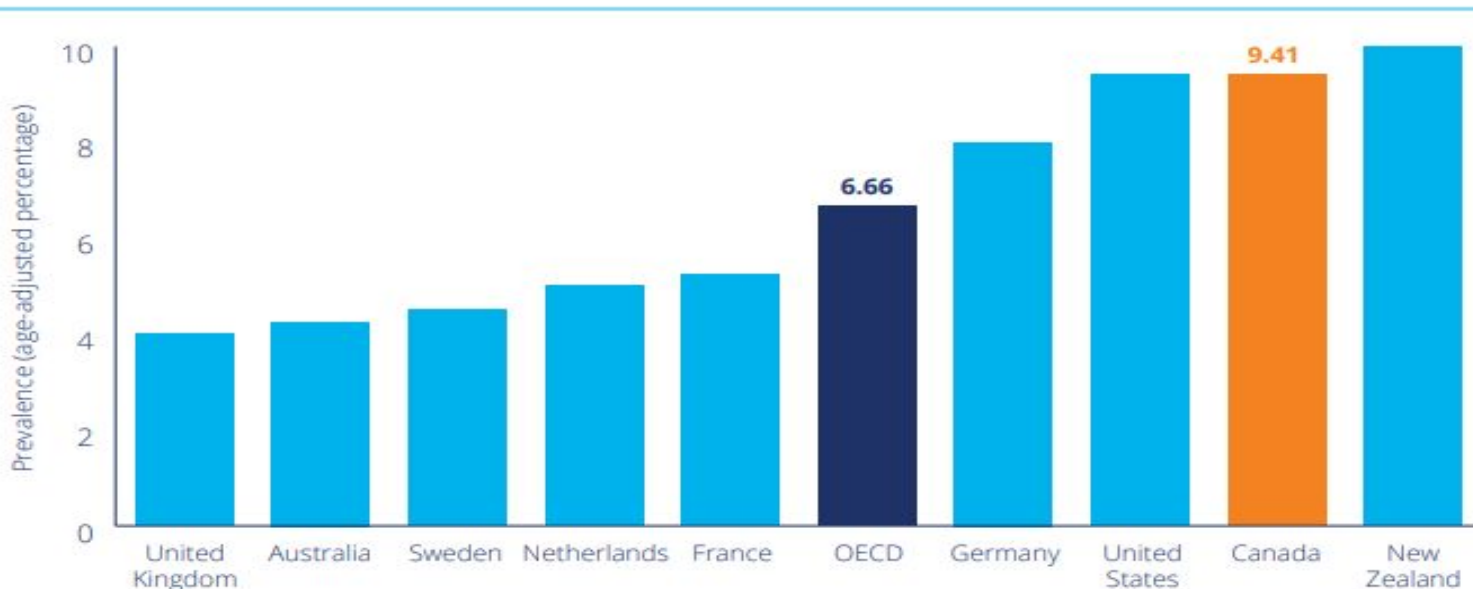
There are three main types of diabetes:

- Type 1 diabetes
- Type 2 diabetes, the most prevalent form
- Gestational diabetes



Diabetes in Canada compared to other OECD countries

Diabetes (types 1 and 2) prevalence in Canada and OECD peer countries



Source: IDF Diabetes Atlas, 6th Edition

Prevalence of Diabetes in Canada

Diabetes by the numbers:



1 in 3 Canadians –
11 million – have diabetes or
prediabetes today



Another Canadian is diagnosed
every 3 minutes



1.5 million
Canadians have type 2 diabetes –
and don't know it



6 million Canadians live
with prediabetes – half will develop
type 2 diabetes if nothing is done

In Ontario

- 30% live with diabetes or prediabetes
- 10% live with diagnosed diabetes, a figure that climbs to 15% when cases of undiagnosed type 2 diabetes are included

The Risk Factors associated with Diabetes

The risk factors for diabetes, particularly Type 2, include

- Increasing age
- Family history
- Ethnicity
- Overweight/obesity
- Sedentary lifestyle
- Unhealthy diet
- Low socioeconomic status
- Education

Age Standardized Prevalence based on ethnicity	
South Asian descent	14.5%
African descent	12.3%
East/ South East Asian	8.5%
Arab/ West Asian	7.5%
Diabetes rates in First Nations People off reserve and in Métis than in the non-Indigenous population	
First Nations People off reserve vs the non-Indigenous population	7.6 times higher
Métis than in the non-Indigenous population,	2.7 times higher
The prevalence of diabetes among adults in the lowest income groups versus adults in the highest income group	
adults in the lowest income groups versus adults in the highest income group	5.4 times higher
Adults who have not completed high school versus adults with a university education	
Adults who have not completed high school have a diabetes prevalence 5.5 times that of adults with a university education	5.5 times higher

Impact of Diabetes on the individual as well as the health system

The Diabetes health toll

Living with diabetes is a 24-hour a day job.

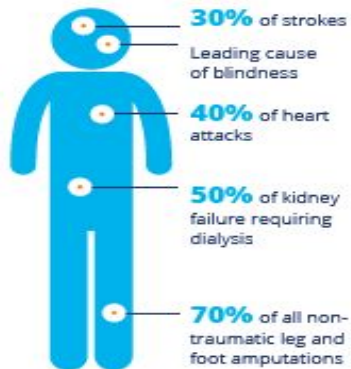
No vacations, no days off. It's a lifelong balancing of diet, exercise, blood sugar testing and medication.

Many people live well with diabetes – with the help of a supportive team of family, friends and health-care providers. Others lack what they need to live well or struggle with the daily demands of diabetes.

Regardless, it puts your health at risk in the following ways:



Health impact – from head to toe



People with diabetes are:

25 times more
likely to experience
vision loss



12 times more
likely to be hospitalized for
kidney failure needing dialysis



3 times more
likely to be
hospitalized for heart
attack, stroke and heart failure



20 times more
likely to be hospitalized for
non-traumatic toe,
foot and leg amputations



Vision



- Diabetes is the leading cause of blindness in Canadians under 50
- 500,000 Canadians have diabetes-related eye damage that can lead to blindness

**Diabetes
reduces lifespan
by 5 to 15 years**

The cost of diabetes in Canada every 24 hours:



480 people will receive a diagnosis of diabetes



14 people will have lower limb amputations



Our health care system will spend almost
\$75 million
treating Canadians with diabetes



More than **20** will die of diabetes complications

Economic Impact:



Sources: Costs - International Diabetes Federation Diabetes Atlases; Prevalence - Canadian Diabetes Cost Model

Estimated Prevalence and Cost of Diabetes

CANADA

ONTARIO

Prevalence (1)	2022	2032
Diabetes (type 1 + type 2 diagnosed + type 2 undiagnosed)	5,719,000 / 14%	7,277,000 / 17%
Diabetes (type 1 and type 2 diagnosed)	4,003,000 / 10%	5,094,000 / 12%
Diabetes (type 1)	5-10% of diabetes prevalence	
Diabetes (type 1 + type 2 diagnosed + type 2 undiagnosed) and prediabetes combined	11,704,000 / 30%	13,965,000 / 33%
Increase in diabetes (type 1 and type 2 diagnosed), 2022-2032	27%	
Out-of-pocket cost per year (2)		
Type 1 diabetes on multiple daily insulin injections	\$1,100-\$2,600	
Type 1 diabetes on insulin pump therapy	\$1,400-\$4,900	
Type 2 diabetes on oral medication	\$1,200-\$1,900	

Prevalence (1)	2022	2032
Diabetes (type 1 + type 2 diagnosed + type 2 undiagnosed)	2,346,000 / 15%	2,953,000 / 17%
Diabetes (type 1 and type 2 diagnosed)	1,643,000 / 10%	2,067,000 / 12%
Diabetes (type 1)	5-10% of diabetes prevalence	
Diabetes (type 1 + type 2 diagnosed + type 2 undiagnosed) and prediabetes combined	4,713,000 / 30%	5,642,000 / 33%
Increase in diabetes (type 1 and type 2 diagnosed), 2022-2032	26%	
Direct cost to the health care system	\$1.7 billion	\$2.1 billion
Out-of-pocket cost per year (2)		
Type 1 diabetes on multiple daily insulin injections	\$1,100-\$2,300	
Type 1 diabetes on insulin pump therapy	\$500-\$1,700	
Type 2 diabetes on oral medication	\$200-\$1,900	

Impact on the economy in Ontario vs the other parts of Canada

Prevalence -2022	Diabetes (Type 1+ Type 2 diagnosed+ Type 2 undiagnosed)	Diabetes (Type 1+ Type 2 diagnosed)	Diabetes (Type 1+ Type 2 diagnosed+ Type 2 undiagnosed) and prediabetes	Cost
BC	825,000 / 16%	577,000 / 11%	1,636,000 / 31%	\$565M
AB	575,000 / 12%	403,000 / 8%	1,242,000 / 26%	\$494M
SK	161,000 / 13%	113,000 / 9%	334,000 / 26%	\$111M
MB	283,000 / 18%	151,000 / 10%	412,000 / 28%	\$152M
ON	2,346,000 / 15%	1,643,000 / 10%	4,713,000 / 30%	\$1.7B
NL	102,000 / 19%	72,000 / 13%	190,000 / 35%	\$70M
PE	25,000 / 15%	17,000 / 11%	50,000 / 31%	\$19M
NS	173,000 / 17%	121,000 / 12%	335,000 / 33%	\$114M
NB	152,000 / 19%	106,000 / 14%	274,000 / 35%	\$110M
Canada	5,719,000 / 14%	4,003,000 / 10%	11,704,000 / 30%	

Direct cost to the healthcare system include: medications, supplies, hospitalizations, medications, physician visits, and managing diabetes-related complications; highest in Ontario.

Indirect costs include:

- Productivity loss due to absenteeism
- work disability
- early retirement
- premature mortality
- individuals' quality of life
- limit their daily activities
- emotional and psychological distress

Current Situation - Federal level

- Bill C-237 also known as An Act to Establish a Framework on Diabetes in Canada
- Development of Diabetes 360 framework
- "Healthy Eating Strategy" launched by Health Canada
- Canadian Diabetes Prevention Program
- Budget 2021: \$35 million over 5 years for diabetes research, surveillance, prevention and innovation

Diabetes 360° Targets:

- 90% of Canadians live in an environment that preserves wellness and prevents the development of diabetes
- 90% of Canadians are aware of their diabetes status
- 90% of Canadians living with diabetes are engaged in appropriate interventions to prevent diabetes and its complications
- 90% of Canadians engaged in interventions are achieving improved health outcomes.

Current Situation - Provincial level

- Ontario ministry of health: Ontario Diabetes strategy
 - expand and enhance diabetes prevention, care and management across the province
 - Targets specific needs of high risk populations with community based interventions, collaboration with public health unit
- Ontario's Primary Care Diabetes Prevention Program
 - Based on research evidence from the Diabetes Prevention Program and the Diabetes Prevention Program Outcomes Study
 - uses a group-based, comprehensive, GLB (Group Lifestyle balance) curriculum that targets healthy eating and physical activity through goal setting, motivation, and lifestyle management skills to meet the following specific objectives
 - Pilot projects were conducted in 6 family health teams
 - consists of three phases. Core phase, which has 12 sessions over 12 weeks. Immediately following is transition phase, which has 4 sessions over 4 to 8 weeks and the maintenance phase, which has 6 sessions over 12 weeks to 24 weeks
 - Outcomes such as risk reduction and other positive outcomes such as increase in self-esteem, sense of well-being
 - They focus on follow up and evaluation as well
- The Ontario Aboriginal Diabetes Strategy
 - sets out a long-term approach to diabetes prevention, care and treatment coordination

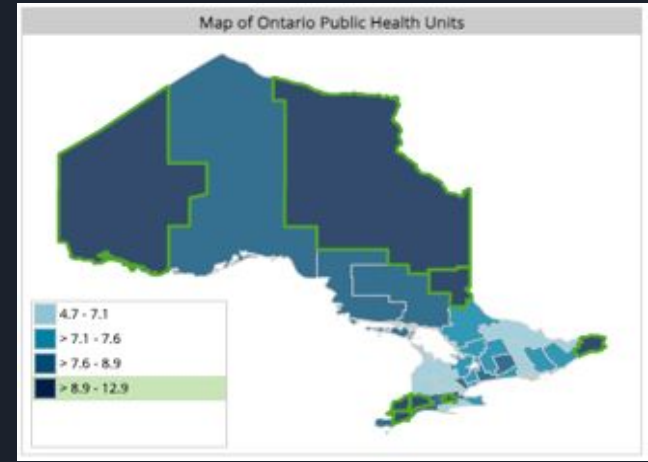


Current Situation - Municipal level

- Ontario's 34 public health units
- Ontario's community health centres
 - Diabetes Prevention Programs
 - offer a variety of community programs that focus on promoting healthy lifestyle changes to prevent type 2 diabetes.
 - workshops and programs focus on diabetes risk assessment, food skills & nutrition, physical activity, smoking cessation and stress management.
 - Peer Leadership Program for the Prevention of Type 2 Diabetes (now closed)
- Southern Ontario Aboriginal Diabetes Initiative (SOADI)
- Northern Diabetes Health Network
- Seniors and Diabetes Initiative
- Diabetes Complication Prevention Strategy
- Evaluation- Ontario Diabetes Status Index

Over 150 hospitals funded by the province to establish or enhance local diabetes programs.

Local diabetes programs educate people with diabetes to self-manage their disease and prevent/delay the onset of diabetes-related complications.



Dark blue- the highest self-reported prevalence of diabetes is in the regions of Timiskaming, Porcupine, Northwestern, Middlesex-London, Lambton, eastern Ontario, Chatham-Kent and Brant County public health units.

Key Players and Advocacy

- People living with diabetes
- Care givers
- Health care providers and researchers
- Diabetes education clinics/programs, family health teams and community health centres
- Indigenous health organizations
- Mental health organizations
- Public health units
- Local Health Integration Networks and Health Quality Ontario
- Provincial and national professional associations
- Digital health experts
- Life sciences partners
- Government (Public health Agency of Canada, Public health Ontario, Ontario ministry of health))
- Diabetes prevention organizations, other health charities and community-based groups (Diabetes Canada)



Key Players and Advocacy

Diabetes Canada put out a report in 2017, focusing on the need for chronic disease prevention, and build on the recommendations to ensure that any strategy not only includes effective primary prevention, but also addresses the management and complications of each particular disease, including diabetes.

The Auditor General's report indicated that Ontario has no overarching chronic disease prevention strategy. While Ontario has succeeded in reducing smoking rates, not placed a similar focus on addressing the other modifiable risk factors to assist in reducing the burden of chronic diseases such as physical activity— even though research has noted that physical inactivity contributed more to health-care costs than smoking.





What's needed? Success stories

- Finland's National Diabetes Prevention Program (FIN-D2D)
- British Columbia- the Live 5-2-1-0 initiative





What's needed?



Diabetes 360° Targets:

90% of Canadians live in an environment that preserves wellness and prevents the development of diabetes

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90% of Canadians living with diabetes are engaged in appropriate interventions to prevent diabetes and its complications

90% of Canadians engaged in interventions are achieving improved health outcomes.

What's needed?

Prevention



- Encouraging healthier lifestyles (including increased physical activity, healthier diet, healthy weight, reduce smoking)
- Children and families should be taught about healthy living and that healthy options are always available from early age
- Appropriate food and nutrition labelling
- Eliminating stigma associated with diabetes
- Reduce stress
- Increase funding for research of innovation prevention strategies

What's needed?

Screening

- Regular Screening for early identification and effective management
- As per Canada's Clinical practice guidelines- Screening for diabetes should be done every 3 years in individuals >40 years of age or at high risk using a risk calculator and even more frequently for people at very high risk
- Make screening tools more widely available such as the CANRISK questionnaire

Outcomes

- Establish a tracking system for diabetes
- Improved data collection and sharing to inform policy development
- Identify measurable outcomes to evaluate program and measure their effectiveness
- Outcomes should be assessed through health equity lens





Test your knowledge

<https://www.menti.com/al86b6d1r7fh>

The voting code 6782 4834





Summary website

Conclusion



- Diabetes in Ontario is a serious public health issue. Certain groups are more affected than others.
- There is an urgent need for comprehensive, evidence-based prevention strategies.
- Recommended interventions include implementing a province-wide diabetes prevention program modeled on successful initiatives, investing in community health infrastructure, and policy measures to promote healthy lifestyles.
- The challenges of funding limitations, the feasibility of interventions, and resistance from certain sectors needs to be overcome.
- A collaborative approach involving all stakeholders is needed!



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Appendix

Appendix 1: Other successful Diabetes Management and Treatment programs

- The London Primary Care Diabetes Support Program
- Several other successful programs include the ones in Dryden, Berrie, Ottawa, Peterborough and NewMarket



Appendix

Appendix 2: What's needed? Treatment strategies

- A patient centered approach
- One-stop shop- Multidisciplinary integrated programs which include mental health support, access to treatment medications, supplies, life-style modification, peer groups and regular follow-ups for management of diabetes
- Enhance data collection and sharing between health care providers
- Education about self-management of Diabetes
- Improved access to medications, supplies and technologies
- Rehabilitation programs
- Establish a standard of care for students with diabetes at school
- Increased fundings for research of innovative treatment strategies