

The Lilly logo is written in a white, elegant cursive script. A thin white vertical line is positioned to the left of the logo.

*Lilly*

# **TACKLING DIABETES: A MULTIFACETED APPROACH**

Benefits Canada Chronic Disease at Work

February 8, 2022



# **OVERVIEW OF TYPE 2 DIABETES (T2D)**

## Overview of type 2 diabetes

### Patient case study – Meet Julia

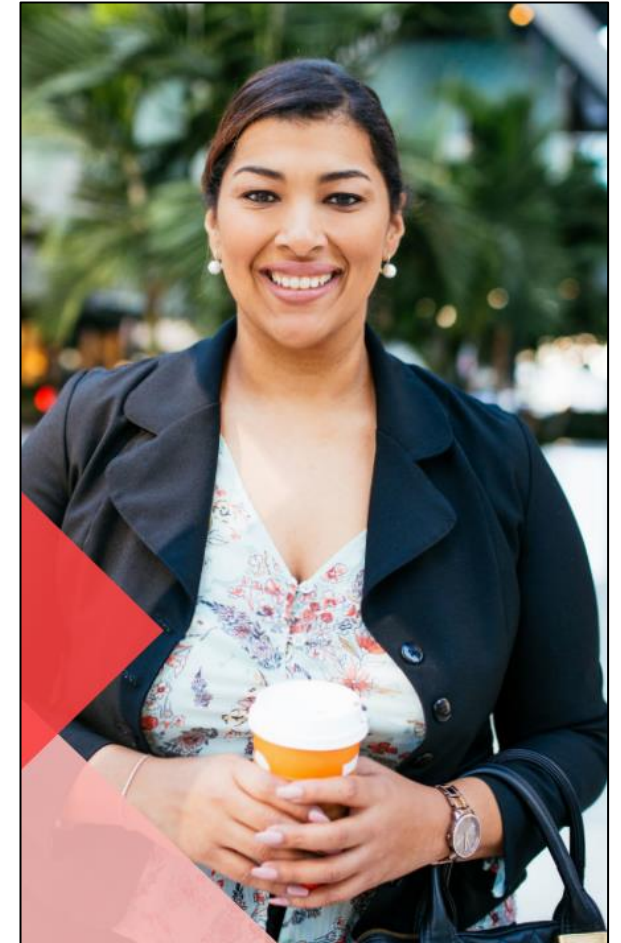
- Julia is a 47-year-old woman with a 7-year history of T2D
- General health: Obese, high blood pressure, and high cholesterol
- Family history: Mother and brother have T2D
- Medications: Metformin, ramipril, and rosuvastatin (misses 30% of doses)
- Lifestyle: Sedentary; works from home at desk job
- Diabetes control: Blood sugars are not controlled
- Treatment challenges: Tries to lose weight, but can't keep it off; scared to go on insulin; doesn't have access to newer diabetes medications

#### JULIA AT DIAGNOSIS

Age: 40

BMI: 32 (overweight)

A1c: 8.0%



## Overview of type 2 diabetes

### T2D is a chronic, progressive disease characterized by resistance to the effect of insulin

---

- Diabetes consists of a group of diseases characterized by elevated blood sugar levels due to the body's inability to produce (T1D) or use (T2D) the hormone insulin from the pancreas
  - T2D comprises most diabetes cases worldwide (90 – 95%)
- T2D is a chronic, progressive disease characterized by the body's resistance to the effect of insulin, and over time, the gradual loss of the pancreas' ability to produce insulin
- Risk factors for T2D include increasing age, overweight / obesity (> 90%), physical inactivity, and family history
  - T2D also has high degree of association with other medical conditions including hypertension, high cholesterol, cardiovascular disease, and fatty liver

**Source:** Diabetes Canada Clinical Practice Guidelines 2013

**Abbreviations:** T1D = type 1 diabetes; T2D = type 2 diabetes.

## Overview of type 2 diabetes

### The prevalence of diabetes is high (~8.1%) and expected to continue to increase over time

---

- Diabetes affects approximately 3 million Canadians (~8.1%)
  - 200,000 Canadians were diagnosed with diabetes in 2016 – 2017
- Prevalence of diabetes increased from 5.6% to 7.8% (+ 37%) from 2003 – 2004 to 2013 – 2014
  - This number is expected to increase as the Canadian population grows and ages
  - It is estimated that 35 – 44% of Canadian adults living with diabetes are *undiagnosed*

**1 in 20**

**adults** have  
diabetes

**1 in 300**

**children** have  
diabetes

# Overview of type 2 diabetes

## Diabetes complications are associated with morbidity, mortality, and reduced QoL

### Microvascular complications

#### **Diabetic eye disease (retinopathy)<sup>1,2</sup>**

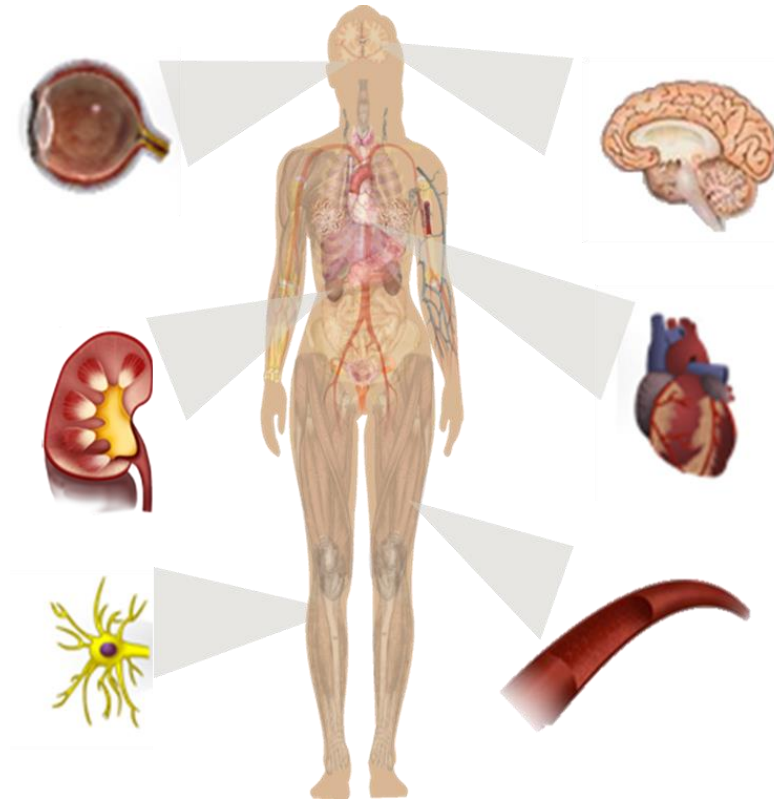
Leading cause of blindness in working age adults

#### **Diabetic kidney disease (nephropathy)<sup>1,3</sup>**

Leading cause of end-stage renal disease (kidney failure)

#### **Diabetic nerve disease (neuropathy)<sup>1,3</sup>**

Leading cause of nontraumatic lower limb amputations



### Macrovascular complications

#### **Stroke<sup>1,4</sup>**

2- to 4-fold increase in cardiovascular mortality and stroke

#### **Heart disease<sup>4,5</sup>**

Responsible for 50 - 80% of diabetes-related deaths

#### **Peripheral vascular disease<sup>1,6</sup>**

Atherosclerosis in the lower extremities, leading to pain and amputation

**Source:** 1. Fowler MJ. *Clin Diabetes* 2008;26:77-82; 2. <https://nei.nih.gov/health/diabetic/retinopathy>; 3. [https://professional.diabetes.org/sites/professional.diabetes.org/files/media/fast\\_facts\\_12-2015a.pdf](https://professional.diabetes.org/sites/professional.diabetes.org/files/media/fast_facts_12-2015a.pdf); 4. [http://schoolwalk.diabetes.org/swfd/swfd\\_mshs\\_attach.pdf](http://schoolwalk.diabetes.org/swfd/swfd_mshs_attach.pdf); 5. Tabish SA. *Int J Health Sci (Qassim)* 2007;1(2):V-VIII; 6. ADA. *Diabetes Care* 2003;26(12):3333-41

**Abbreviations:** QoL = quality of life.

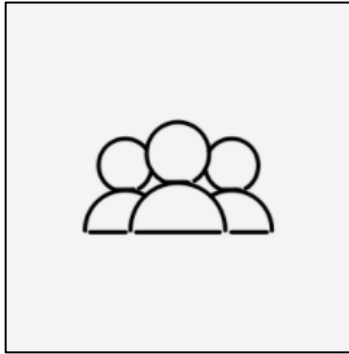


# MANAGEMENT OF T2D

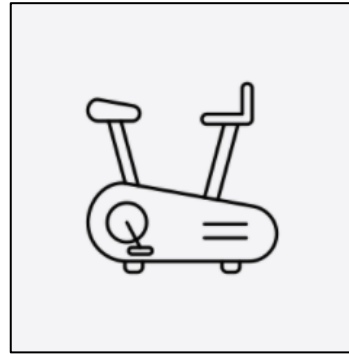
## Management of type 2 diabetes

A multifaceted approach is required to manage diabetes and maintain QoL

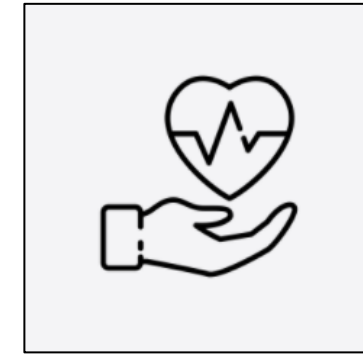
---



Empathetic, individualized,  
patient-centred care



Stepwise approach, with  
metformin and comprehensive  
lifestyle management as the  
foundational therapies



Treatment pathways should  
include consideration of key  
patient characteristics, in  
particular cardiovascular disease



# Management of type 2 diabetes

## The “ABCDEs” of diabetes care

---

**A:** A1c targets

**B:** BP targets

**C:** Cholesterol targets

**D:** Drugs for CV and / or cardiorenal protection

**E:** Exercise goals and healthy eating

**S:** Screening for complications

**S:** Smoking cessation

**S:** Self-management, stress, other barriers

**Source:** Diabetes Canada Clinical Practice Guidelines: 2020 Update.

**Abbreviations:** A1c = glycated hemoglobin; BP = blood pressure; CV = cardiovascular; T2D = type 2 diabetes.

## Management of type 2 diabetes

### Physical activity and nutrition therapy can have meaningful impacts on disease course

---

#### Exercise

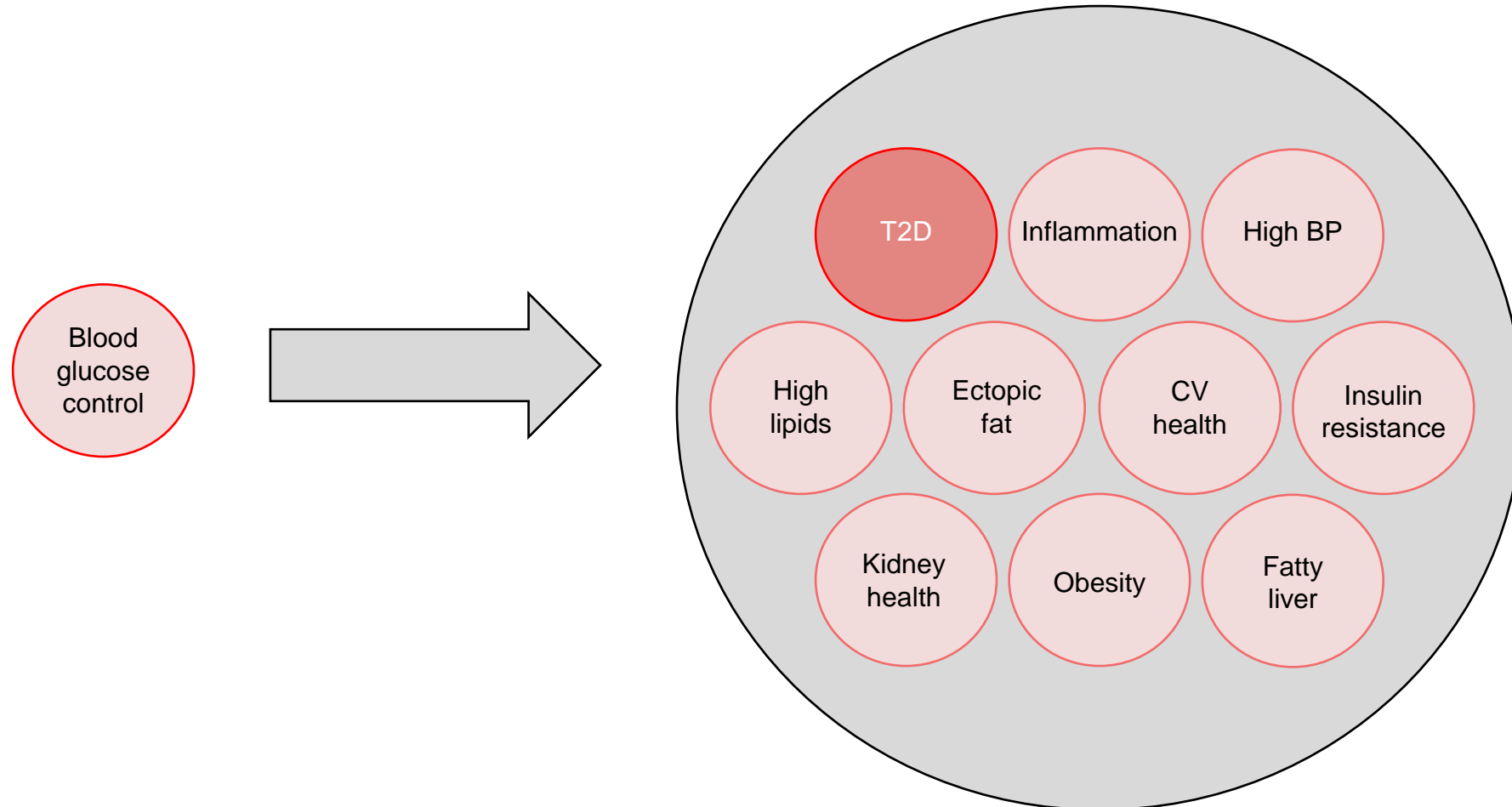
- ✓ Supervised exercise programs in T2D show:
  - ✓ Blood sugar reduction
  - ✓ Medication reduction
  - ✓ Weight loss
- ✓ Aerobic exercise target  $\geq 150$  min per week
- ✓ Resistance training  $\geq 2$  sessions per week

#### Nutrition Therapy

- ✓ Average A1c reduction of 1 - 2%
- ✓ Dietary counselling for all persons with T2D
- ✓ Low-glycemic-index carbohydrates
- ✓ Reduced caloric diet for weight loss in overweight / obese
- ✓ No “one-size-fits-all” diet
  - ✓ Several dietary patterns have shown benefit

# Management of type 2 diabetes

## It's not just about managing glucose anymore

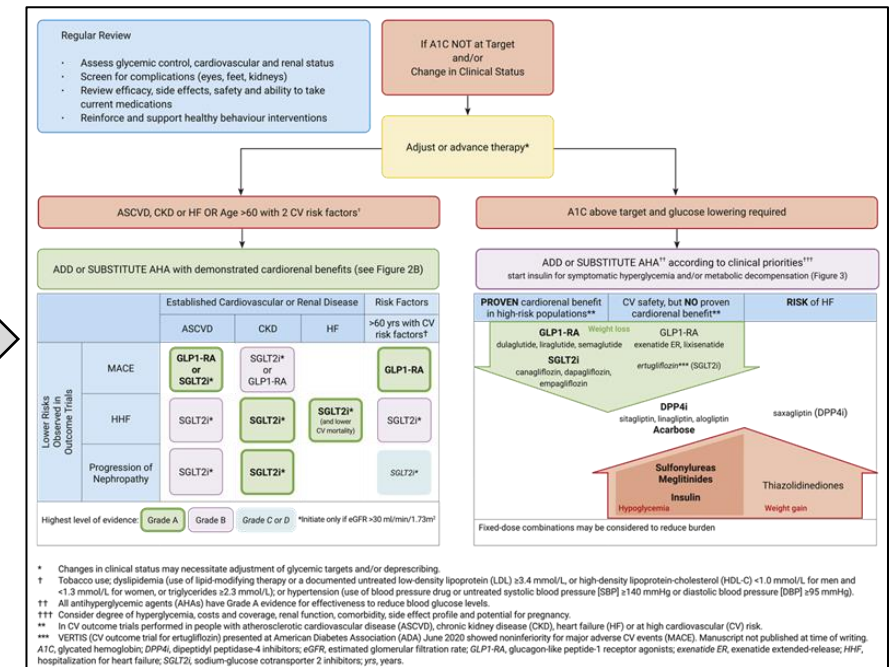
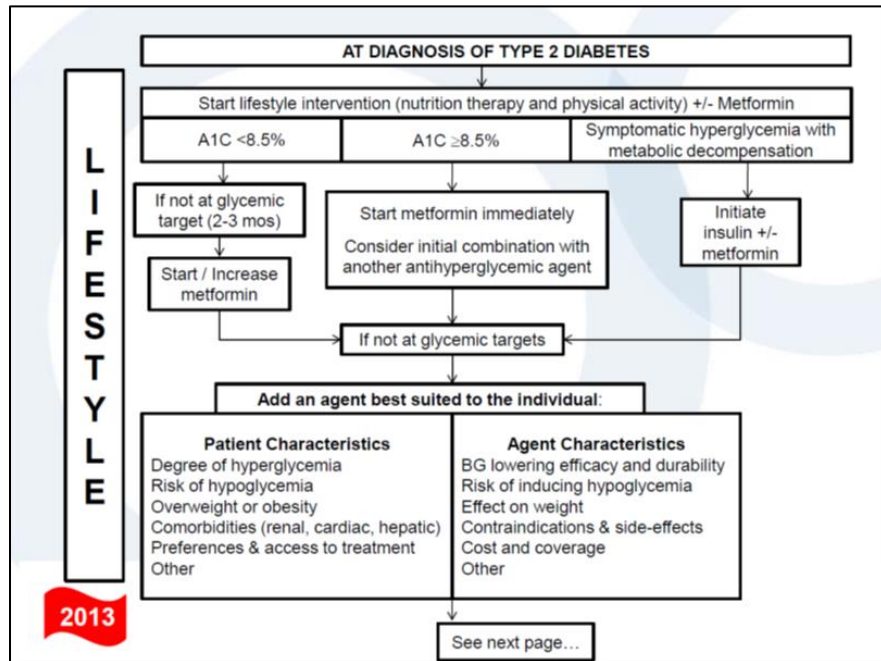


**Abbreviations:** BP = blood pressure; CV = cardiovascular; T2D = type 2 diabetes.

# Management of type 2 diabetes

## How has treatment evolved over the years?

### Diabetes Canada Guidelines – 2013 versus 2020



# Management of type 2 diabetes

## New drugs are helping patients differently

	Metformin	Sulfonylurea	Insulin	DPP-4 inhibitors	SGLT-2 inhibitors	GLP-1 receptor agonists
Glycemic control	Yes	Yes	Yes	Yes	Yes	Yes
Weight loss	No	No	No	No	Yes	Yes
CV health	No	No	No	No	Yes	Yes
Kidney health	No	No	No	No	Yes	Maybe

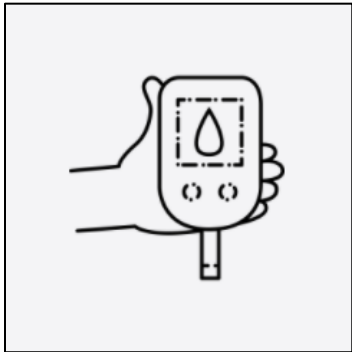
**Source:** Pharmacologic Management of Type 2 Diabetes in Adults: 2020 Update. Diabetes Canada Clinical Practice Guidelines.; Greco EV et al. *Medicina*. 2019; 55(6):233.

**Abbreviations:** CV = cardiovascular; DPP-4 = dipeptidyl peptidase-4; GLP-1 = glucagon-like peptide 1; SGLT-2 = sodium-glucose cotransporter-2; T2D = type 2 diabetes.

# Management of type 2 diabetes

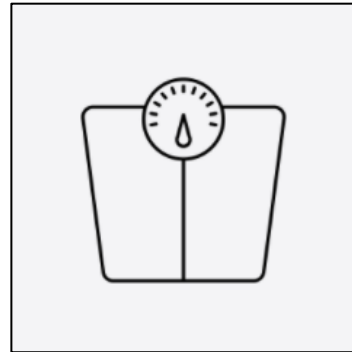
## Treatment gaps remain in diabetes management

**48%**



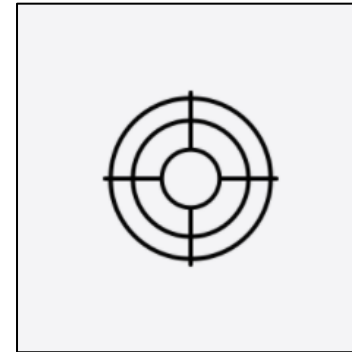
Not achieving  
glycemic control

**90%**



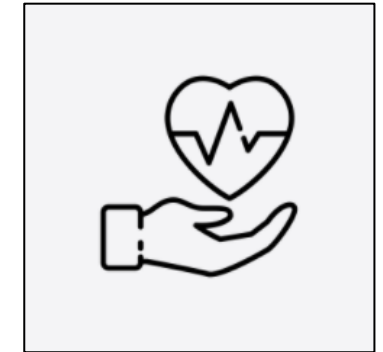
T2D patients  
overweight or obese

**40% - 49%**



Not meeting BP or  
cholesterol targets

**< 5%**



On CV-protective  
diabetes drugs

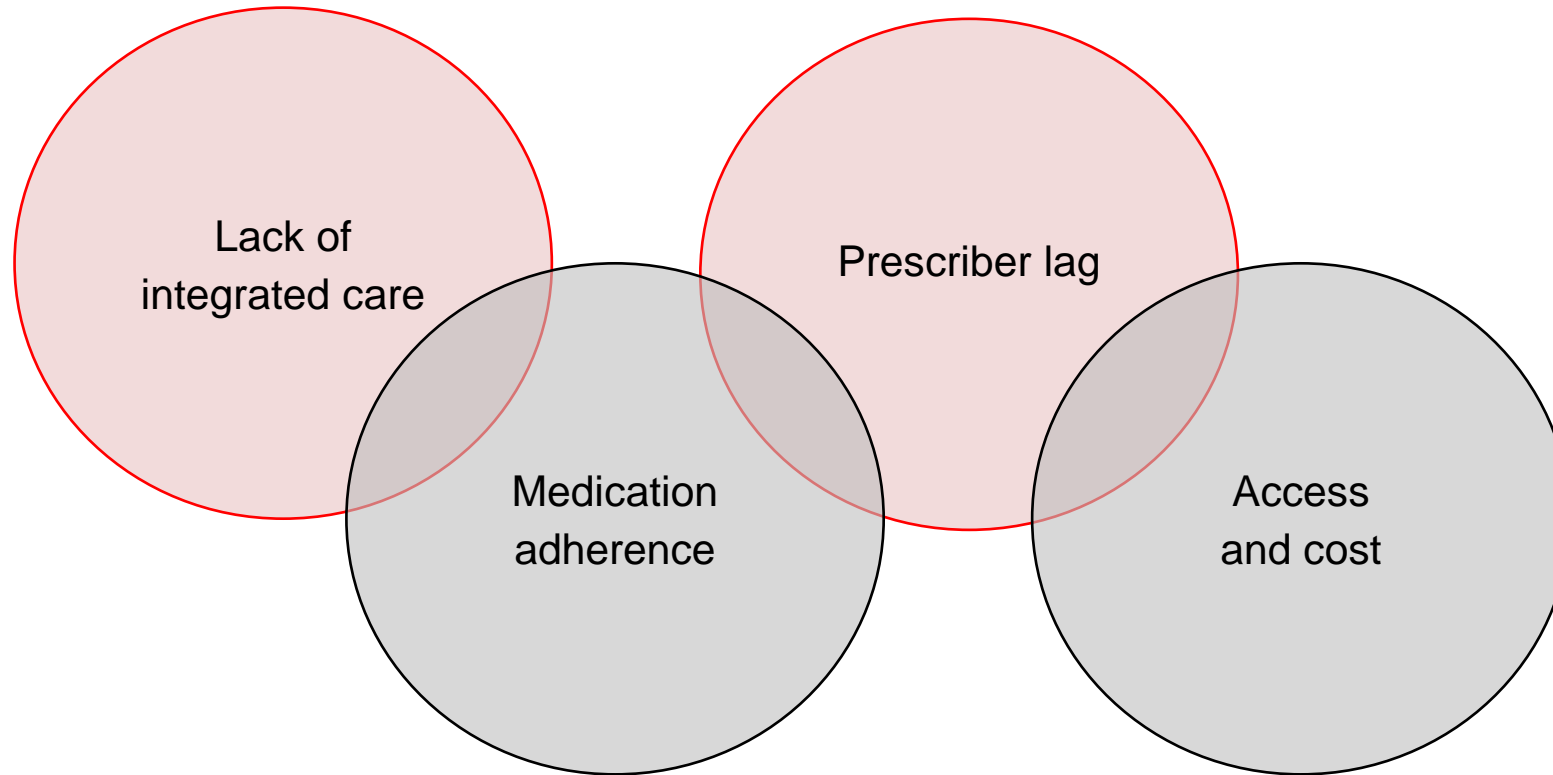
**Source:** Ali M et al. *N Engl J Med* 2013;368:1613-24; Bramante C.T. et al. *Diabetes Spectrum* 2017 Nov; 30(4): 237-243; Hamid A et al. *J Cardiovasc Pharmacol* 2020;76:313-20.

**Abbreviations:** BP = blood pressure; CV = cardiovascular; T2D = type 2 diabetes.

## Management of type 2 diabetes

The cause of treatment gaps are varied and complex

---



## Management of type 2 diabetes

### Low medication adherence leads to worse health outcomes and higher healthcare costs

---

- Poor medication adherence is attributed to worse glycemic control and associated comorbidities
- A higher rate of all-cause mortality is associated with low medication adherence
- Poor medication adherence is associated with higher healthcare costs
  - Increased costs of T2D outpatient care, ER visits, hospitalizations, and complications of diabetes
  - Direct cost of poor adherence estimated to be \$105.8 billion USD in 2010

**Source:** Nasseh K et al. *Am J Pharm Benefits*. 2012;4(2):e41–e47; Polonsky W.H. and R.R. Henry. *Patient Preference and Adherence* 2016;10 1299–1307.

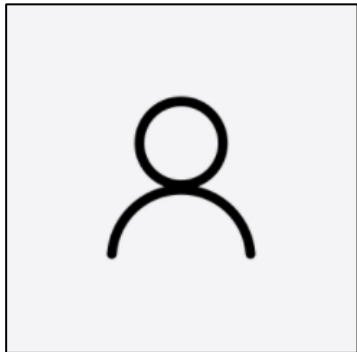
**Abbreviations:** ER = emergency room; T2D = type 2 diabetes; USD = United States dollars.



# Management of type 2 diabetes

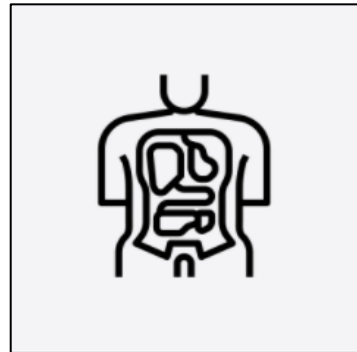
## There are many contributors to sub-optimal medication adherence

### Demographics



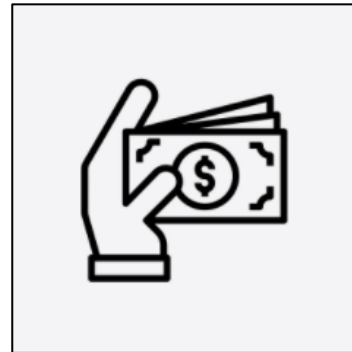
Younger age  
Low education level  
Low income

### Comorbidities



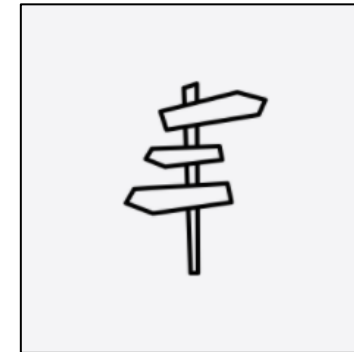
Depression  
Hypoglycemia  
Weight gain

### Financial



Treatment cost

### Patient experience



Perceived efficacy  
Complexity,  
convenience  
Physician trust  
Negative beliefs

### Awareness

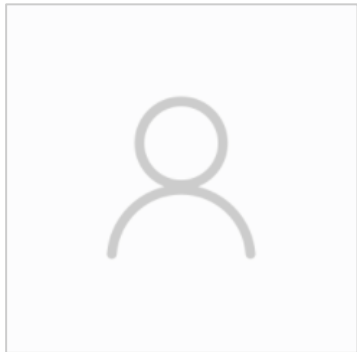


Low diabetes  
awareness

# Management of type 2 diabetes

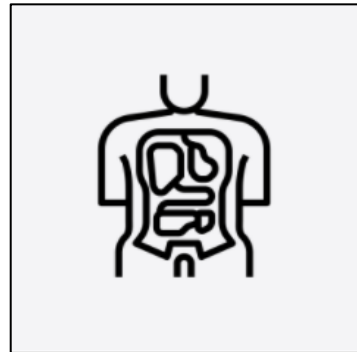
## New therapies may help to address barriers, including adherence

### Demographics



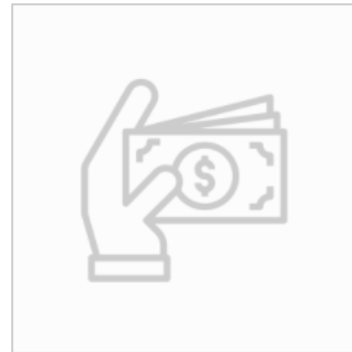
Younger age  
Low education level  
Low income

### Comorbidities



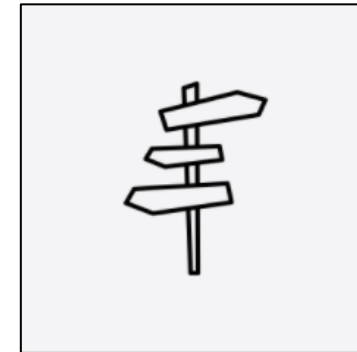
Depression  
Hypoglycemia  
Weight gain

### Financial



Treatment cost

### Patient experience



Perceived efficacy  
Complexity,  
convenience  
Physician trust  
Negative beliefs

### Awareness



Low diabetes  
awareness



# **SUMMARY AND CONCLUSIONS**

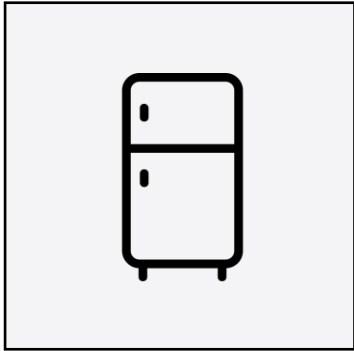
# Summary

---

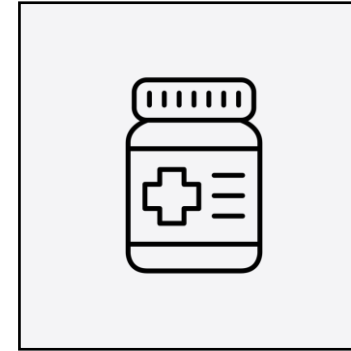
- **T2D is a chronic, progressive disease characterized by resistance to the effect of insulin**
  - The prevalence of diabetes is high (~8.1%) and expected to continue to increase over time
- **A multifaceted approach is required to manage diabetes and maintain QoL**
  - Physical activity and nutrition therapy can have meaningful impacts on disease course
  - Management is shifting away from a glucose-centric approach, and newer diabetes agents are demonstrating benefits beyond glycemic control
- **Treatment gaps remain in diabetes management**
  - New therapies may help to address barriers, including adherence

## What now? Steps you can take to benefit your plan members

---



**Accommodations** available for employees with diabetes (e.g., storage for food, medication, testing supplies or flexibility to take breaks)

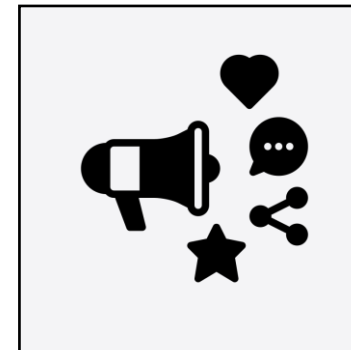


Sufficient **diabetes drug coverage**, services, and tools within the health plan, including new and emerging therapies



**Health and wellness programs** to reduce risk of diabetes (e.g., dietician onsite and support healthy eating)

**Diabetes screening programs**



Run **targeted campaigns and educational programs** to encourage engagement in workplace programs on a holistic approach to diabetes

# For more information... The Plan Sponsor's guide to diabetes



The PLAN SPONSOR'S guide to diabetes

PRESENTED BY **Benefits**

[View the Flipbook](#)

[Download the Report](#)

- Introduction**
- Diabetes Basics**
- Workplace Impact of Diabetes**
- Managing Diabetes**
- Reducing the Risk of Type 2 Diabetes**
- Innovation in Diabetes Management**
- Managing Diabetes in the Workplace**

**Plan Sponsor Checklist**

**Workplace Support**

- Is your workplace environment supportive of employees with diabetes or who are caregivers of people with diabetes?
- Does your workplace avoid diabetes stigma?
- Does your workplace accommodate needs of employees with diabetes?

**Benefit Plan Design**

- Is your workplace environment supportive of employees with diabetes or who are caregivers of people with diabetes?
- Does your workplace avoid diabetes stigma?
- Does your workplace accommodate needs of employees with diabetes?
- Does your benefit plan coverage for glucose monitoring devices, such as intermittently scanned continuous glucose monitoring (isCGM) and realtime continuous glucose monitoring (rtCGM), align with Diabetes Canada's blood glucose monitoring recommendations?
- Does your drug plan:
  - cover medications employees need to manage their diabetes? Are these medication-coverage decisions and criteria aligned with Diabetes Canada's Clinical Practice Guidelines?