UPDATED FOR 2020

Clinical Practice Guidelines
Quick Reference Guide

guidelines.diabetes.ca
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DIABETES CANADA

Screening and diagnosis of type 2 diabetes in adults

Assess risk factors for type 2 diabetes ANNUALLY:

- Family history (first-degree relative with type 2 diabetes)
- High risk populations (non-white, low socioeconomic status)
- History of GDM/prediabetes
- Cardiovascular risk factors
- Presence of end organ damage associated with diabetes
- Other conditions and medications associated with diabetes
  (see CPG Chapter 4, Screening for Diabetes in Adults, Table 1)

Who to screen

No risk factors
→ **Age <40 years** or low-moderate risk* → No screen indicated

→ **Age ≥40 years** or high risk* (33% chance of developing type 2 diabetes within 10 years) → Screen every 3 years

Presence of risk factors
→ or very high risk (50% chance of developing type 2 diabetes within 10 years) → Screen every 6 to 12 months

How to screen

Test	Result	Dysglycemia category
FPG (mmol/L) No caloric intake for at least 8 hours	6.1 – 6.9	IFG
	≥7.0	Diabetes
A1C (%)**	6.0 – 6.4	Prediabetes
	≥6.5	Diabetes

If asymptomatic and A1C or FPG are in the diabetes range, repeat the same test (A1C or FPG) as a confirmatory test. If both FPG and A1C are available and only one is in the diabetes range, repeat the test in the diabetes range as the confirmatory test. If both A1C and FPG are available and are each in the diabetes range, diabetes is confirmed. If symptoms of overt hyperglycemia are present, diagnosis of diabetes can be determined with one test (A1C, FPG, 2hPG, random PG) in the diabetes range, see Chapter 3, CPG.
*using a validated risk calculator (e.g. CANRISK)
**Use a standardized, validated assay. Be aware of factors that affect A1C accuracy (see CPG Chapter 9, Table 1)

Targets for glycemic control

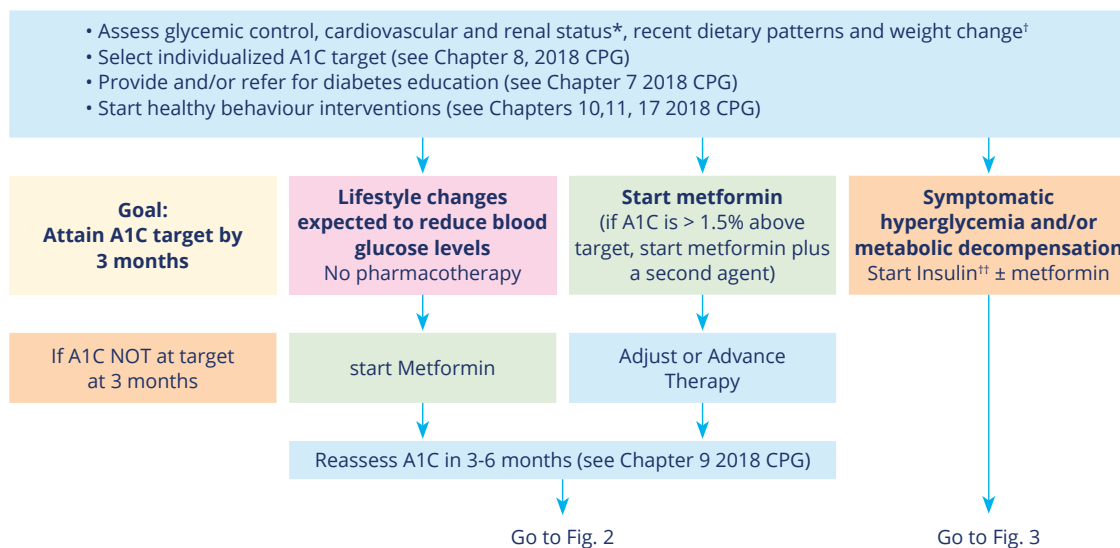| A1C%	Targets
≤6.5	Adults with type 2 diabetes to reduce the risk of CKD and retinopathy if at low risk of hypoglycemia*
≤7.0	**MOST ADULTS WITH TYPE 1 OR TYPE 2 DIABETES**
7.1 ↓ 8.5	Functionally dependent*: **7.1-8.0%** Recurrent severe hypoglycemia and/or hypoglycemia unawareness: **7.1-8.5%** Limited life expectancy: **7.1-8.5%** Frail elderly and/or with dementia†: **7.1-8.5%**
	Avoid higher A1C to minimize risk of symptomatic hyperglycemia and acute and chronic complications

End of life: A1C measurement not recommended. Avoid symptomatic hyperglycemia and any hypoglycemia.
* based on class of antihyperglycemic medication(s) utilized and the person's characteristics
† see Diabetes in Older People chapter

At diagnosis of type 2 diabetes (Fig. 1)

2020

- Assess glycemic control, cardiovascular and renal status*, recent dietary patterns and weight change†
- Select individualized A1C target (see Chapter 8, 2018 CPG)
- Provide and/or refer for diabetes education (see Chapter 7 2018 CPG)
- Start healthy behaviour interventions (see Chapters 10,11, 17 2018 CPG)

Goal: **Attain A1C target by 3 months**	**Lifestyle changes expected to reduce blood glucose levels** No pharmacotherapy	**Start metformin** (if A1C is > 1.5% above target, start metformin plus a second agent)	**Symptomatic hyperglycemia and/or metabolic decompensation** Start Insulin†† ± metformin
If A1C NOT at target at 3 months	start Metformin	Adjust or Advance Therapy	

Reassess A1C in 3-6 months (see Chapter 9 2018 CPG)
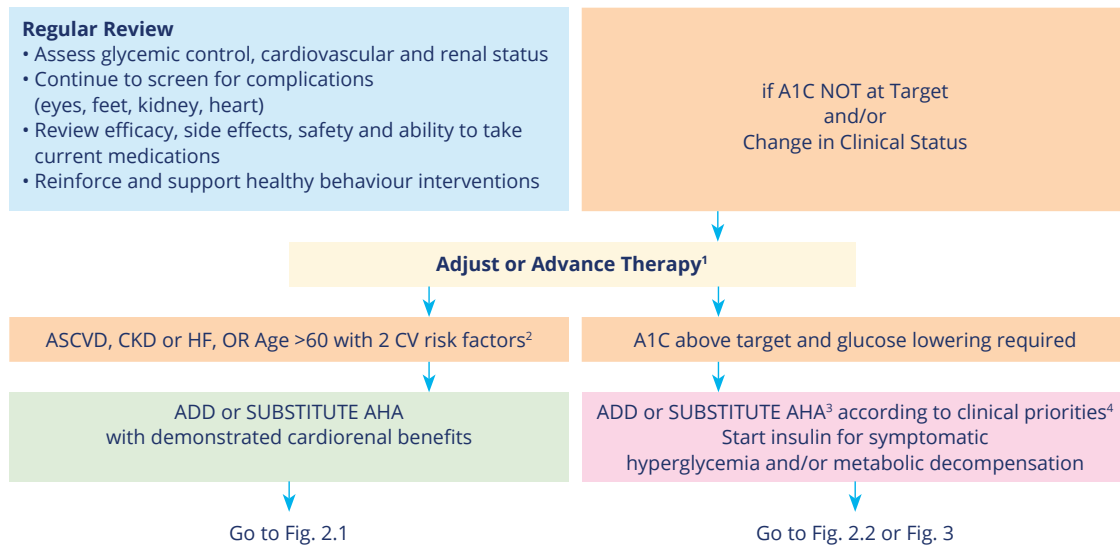
Go to Fig. 2   Go to Fig. 3

* In individuals **with** atherosclerotic cardiovascular disease, history of heart failure (with reduced ejection fraction) or chronic kidney disease, agents with cardiorenal benefits may be considered (see Pharmacologic Glycemic Management of Type 2 Diabetes in Adults 2020 Update – The Users Guide)
† Unintentional weight loss should prompt consideration of other diagnoses (e.g. type 1 diabetes or pancreatic disease)
†† Reassess need for ongoing insulin therapy once type of diabetes is established and response to healthy behaviour interventions is assessed

Reviewing, adjusting or advancing therapy in type 2 diabetes (Fig. 2)

2020

Regular Review
- Assess glycemic control, cardiovascular and renal status
- Continue to screen for complications (eyes, feet, kidney, heart)
- Review efficacy, side effects, safety and ability to take current medications
- Reinforce and support healthy behaviour interventions

if A1C NOT at Target
and/or
Change in Clinical Status

Adjust or Advance Therapy[1]

ASCVD, CKD or HF, OR Age >60 with 2 CV risk factors[2]

A1C above target and glucose lowering required

ADD or SUBSTITUTE AHA
with demonstrated cardiorenal benefits

ADD or SUBSTITUTE AHA[3] according to clinical priorities[4]
Start insulin for symptomatic
hyperglycemia and/or metabolic decompensation

Go to Fig. 2.1

Go to Fig. 2.2 or Fig. 3

1 Changes in clinical status may necessitate adjustment of glycemic targets and/or deprescribing
2 Tobacco use; dyslipidemia (use of lipid modifying therapy or a documented untreated LDL ≥3.4 mmol/L, or HDL-C <1.0 mmol/L for men and <1.3 mmol/L for women, or triglycerides ≥2.3 mmol/L); or hypertension (use of blood pressure drug or untreated SBP ≥140 mm Hg or DBP ≥95 mmHg)
3 All AHA's have Grade A evidence for effectiveness to reduce blood glucose levels
4 Consider degree of hyperglycemia, costs and coverage, renal function, comorbidity, side effect profile, and potential for pregnancy

For people with ASCVD, CKD or HF, OR >60 yrs and 2 CV risk factors (Fig. 2.1)

2020

ADD or SUBSTITUTE AHA with demonstrated cardiorenal benefits

Lower Risks Observed in Outcomes Trials	Established Cardiovascular or Renal Disease			Risk Factors
	ASCVD	CKD	HF	>60 yrs with 2 CV risk factors†
MACE	**GLP1-RA††** **or** **SGLT2i***	SGLT2i* or GLP1-RA††		**GLP1-RA††**
HHF	SGLT2i*	**SGLT2i***	**SGLT2i*** (and lower CV mortality)	SGLT2i*
Progression of Nephropathy	SGLT2i*	**SGLT2i***		*SGLT2i**

Highest level of evidence   **Grade A**   Grade B   *Grade C or D*

† Tobacco use; dyslipidemia (use of lipid modifying therapy or a documented untreated LDL ≥3.4 mmol/L, or HDL-C <1.0 mmol/L for men and <1.3 mmol/L for women, or triglycerides ≥2.3 mmol/L); or hypertension (use of blood pressure drug or untreated SBP ≥140 mm Hg or DBP ≥95 mmHg)
†† Stop DPP4i when starting a GLP1-RA
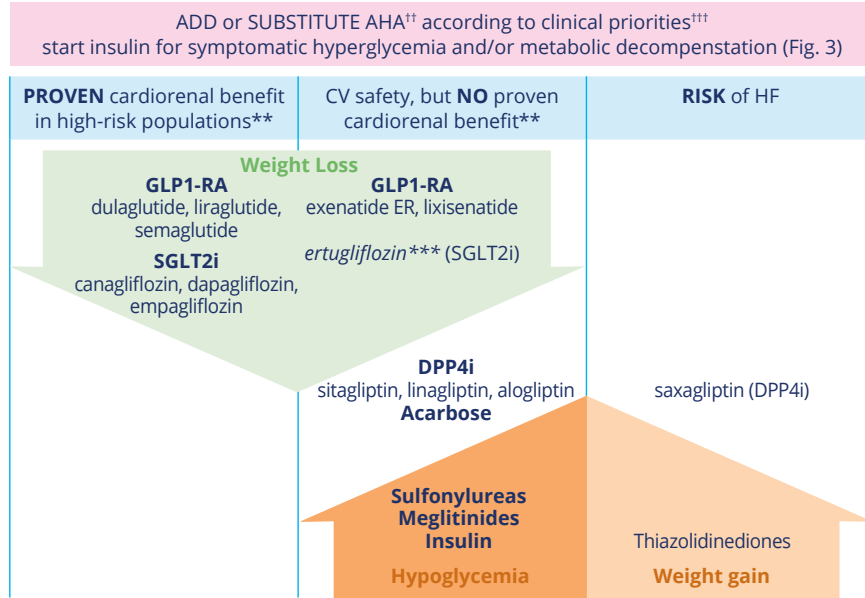* Initiate only if eGFR >30 ml/min/1.73m^2

Where additional glucose lowering is required (Fig. 2.2)

†† All AHA's have Grade A evidence for effectiveness to reduce blood glucose levels

††† Consider degree of hyperglycemia, costs and coverage, renal function, comorbidity, side effect profile, and potential for pregnancy
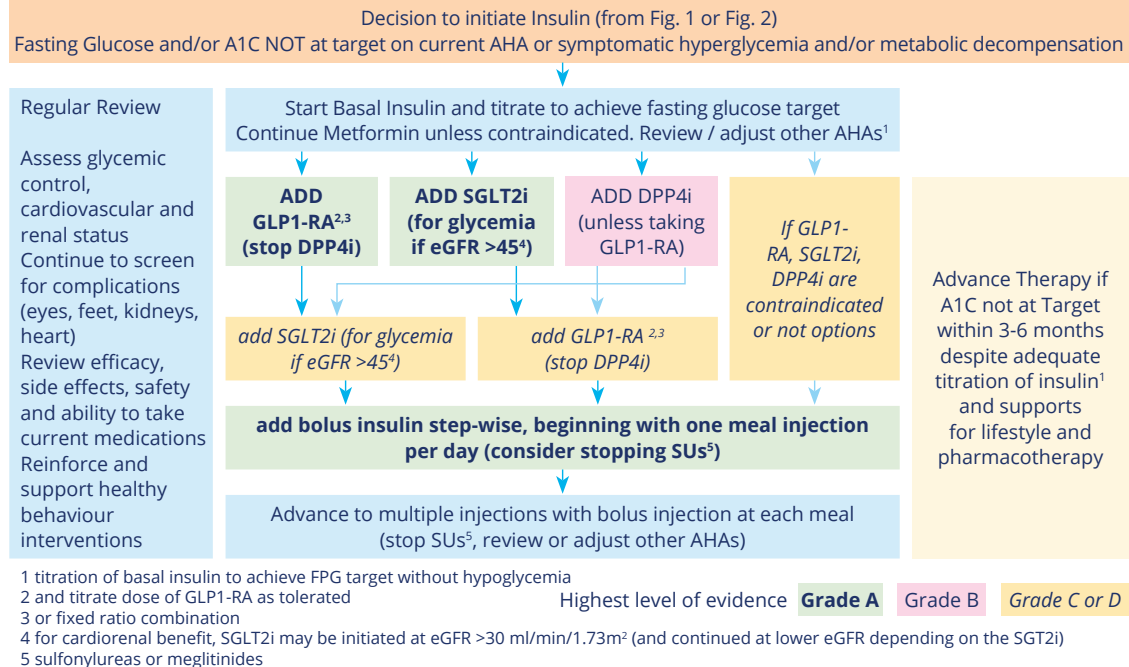
ADD or SUBSTITUTE AHA†† according to clinical priorities†††
start insulin for symptomatic hyperglycemia and/or metabolic decompenstation (Fig. 3)

PROVEN cardiorenal benefit in high-risk populations**	CV safety, but **NO** proven cardiorenal benefit**	**RISK** of HF

Weight Loss

GLP1-RA
dulaglutide, liraglutide, semaglutide

SGLT2i
canagliflozin, dapagliflozin, empagliflozin

GLP1-RA
exenatide ER, lixisenatide

*ertugliflozin*** (SGLT2i)

DPP4i
sitagliptin, linagliptin, alogliptin
Acarbose

saxagliptin (DPP4i)

Sulfonylureas
Meglitinides
Insulin

Hypoglycemia

Thiazolidinediones

Weight gain

** In CV outcome trials performed in people with ASCVD, CKD, HF or at high CV risk
*** VERTIS (CV outcome trial for ertugliflozin) presented at ADA June 2020 showed non-inferiority for MACE. Manuscript not published at time of writing.

Starting or advancing insulin in type 2 diabetes (Fig. 3)

Decision to initiate Insulin (from Fig. 1 or Fig. 2)
Fasting Glucose and/or A1C NOT at target on current AHA or symptomatic hyperglycemia and/or metabolic decompensation

Regular Review

Assess glycemic control, cardiovascular and renal status
Continue to screen for complications (eyes, feet, kidneys, heart)
Review efficacy, side effects, safety and ability to take current medications
Reinforce and support healthy behaviour interventions

Start Basal Insulin and titrate to achieve fasting glucose target
Continue Metformin unless contraindicated. Review / adjust other AHAs[1]

ADD GLP1-RA[2,3] **(stop DPP4i)**	**ADD SGLT2i (for glycemia if eGFR >45**[4]**)**	ADD DPP4i (unless taking GLP1-RA)	*If GLP1-RA, SGLT2i, DPP4i are contraindicated or not options*	

add SGLT2i (for glycemia if eGFR >45[4]*)*   *add GLP1-RA* [2,3] *(stop DPP4i)*

Advance Therapy if A1C not at Target within 3-6 months despite adequate titration of insulin[1] and supports for lifestyle and pharmacotherapy

add bolus insulin step-wise, beginning with one meal injection per day (consider stopping SUs[5]**)**

Advance to multiple injections with bolus injection at each meal (stop SUs[5], review or adjust other AHAs)

1 titration of basal insulin to achieve FPG target without hypoglycemia
2 and titrate dose of GLP1-RA as tolerated
3 or fixed ratio combination
4 for cardiorenal benefit, SGLT2i may be initiated at eGFR >30 ml/min/1.73m² (and continued at lower eGFR depending on the SGT2i)
5 sulfonylureas or meglitinides

Highest level of evidence **Grade A** | Grade B | *Grade C or D*

Which cardiovascular non-antihyperglycemic medications are indicated for my patient?

Does the patient have cardiovascular disease? - Cardiac ischemia (silent or overt) - Peripheral arterial disease - Cerebrovascular/carotid disease	**YES** →	**Statin[1]** + **ACEi/ARB[2]** + **ASA[3]**
↓ **NO**		
Does the patient have microvascular disease? - Retinopathy - Kidney disease (ACR ≥2.0) - Neuropathy	**YES** →	**Statin[1]** + **ACEi/ARB[2]**
↓ **NO**		
Is the patient: - age ≥55 with additional CV risk factors?[4]	**YES** →	
- age ≥40? - age ≥30 and diabetes >15 years? - warranted for statin therapy based on the Canadian Cardiovascular Society Lipid Guidelines?	**YES** →	**Statin[1]**

1 Dose adjustments or additional lipid therapy warranted if lipid target (LDL-C <2.0 mmol/L) not being met.
2 ACE-inhibitor or ARB (angiotensin receptor blocker) should be given at doses that have demonstrated vascular protection (eg. perindopril 8 mg once daily [EUROPA trial], ramipril 10 mg once daily [HOPE trial], telmisartan 80 mg once daily [ONTARGET trial]).
3 ASA should not routinely be used for the primary prevention of cardiovascular disease in people with diabetes. ASA may be used for secondary prevention. Consider clopidogrel if ASA-intolerant.
4 TC > 5.2 mmol/L, HDL-C < 0.9 mmol/L, hypertension, albuminuria, smoking.

For antihyperglycemic medications with CVD and/or cardiorenal benefits see Fig. 2.1

Keeping patients safe when they are at risk of hypoglycemia

For patients using glyburide, gliclazide, repaglinide or insulin:

Recognize
- ASK at each visit
- ASSESS impact, including fear/intentional avoidance of lows
- SCREEN for hypoglycemia unawareness

Act/Treat
- EDUCATE on treatment of non-severe hypoglycemia with fast-acting sugar and severe hypoglycemia with glucagon

Prevent
- CONSIDER switching from high risk medications
- DISCUSS POSSIBLE CAUSES (e.g. increased activity, skipped meals) and how to avoid future hypoglycemia.

Reduce Driving Risk
- EDUCATE patients to drive safely with diabetes
  Prepare Keep fast-acting sugar within reach and other snacks nearby
  Be Aware of blood glucose (BG) before driving and every 4 hours during long drives. If BG is below 4 mmol/L, treat
  Stop driving and treat if any symptoms appear
  After treating a low, **wait** until BG is above 5 mmol/L to start driving. Note: Brain function may not be fully restored for some time after blood glucose level returns to normal

If a patient is unaware of symptoms of hypoglycemia, he/she must check their BG before driving and every 2 hours while driving, or wear a real-time continuous glucose monitor

Refer to Hypoglycemia and Drive Safe resources

Keeping patients safe when they are at risk of dehydration (vomiting/diarrhea)

Re-hydrate appropriately (water, broth, diet soft drinks, sugar-free Kool-Aid™, diet Jell-O™; avoid caffeinated beverages).

Hold SADMANS meds. **Restart** once able to eat/drink normally.

S sulfonylureas, other secretagogues
A ACE-inhibitors
D diuretics, direct renin inhibitors
M metformin
A angiotensin receptor blockers
N non-steroidal anti-inflammatory drugs
S SGLT2 inhibitors

Special considerations regarding pregnancy for women with type 1 or type 2 diabetes

For women planning pregnancy, the following steps taken prior to conception:

- **A1C** 7% or less, but strive for ≤6.5% (ensure contraception until at personalized target)
- **Stop:**
  - Non-insulin antihyperglycemic agents (except metformin and/or glyburide)
  - Statins
  - ACEi/ARB prior to pregnancy, but if overt nephropathy exists, continue until detection of pregnancy
- **Start:**
  - Folic acid 1 mg per day x 3 months prior to conception
  - Insulin if target A1C is not achieved on metformin and/or glyburide (type 2)
  - Other antihypertensive agents safe for pregnancy (Labetalol, nifedepine XL) if hypertension control needed
- **Screen for complications:**
  - Eye appointment, serum creatinine, urine ACR, blood pressure
- Aim for **healthy BMI**
- Ensure appropriate **vaccinations** have occurred
- **Refer** to diabetes clinic

3 Quick questions to help your patients meet their goals

For patients who are not making expected progress, try asking these questions to identify a path forward:

1. How important is it for you to <insert self-management goal> **- low, medium, or high?**
- (Goal examples: increase levels of physical activity, reduce weight, improve A1C, lower BP)
- If importance (motivation) is rated low, ask what would need to happen for importance to go up?
- A high level of importance will indicate that the person is ready to change.

2. How confident are you in your ability to <insert target outcome here> **- low, medium, or high?**
- If their confidence is rated low, explore what needs to happen to increase their confidence. Usually this has to do with improving knowledge, skills or resources and support.
- A high level of confidence indicates that the person is ready to change.

3. Can we set a specific goal for you to try before the next time we meet? What steps will you take to achieve it?
- Encourage S.M.A.R.T. Goals:

Specific **M**easurable **A**chievable **R**ealistic **T**imely

Individualized goal setting

Potential Self-management Goals	Examples
Eat healthier	See a dietitian to help develop a healthy eating plan.
Be more active	Increase physical activity with the goal of getting to 150 minutes aerobic activity/week and resistance exercise 2-3 times/week. Choose physical activity that meets preferences/needs.
Lose weight	Use strategies (e.g., reduce calories or portions) to lose 5-10% of initial weight.
Take medication regularly	Taking medication will help to improve symptoms and take control of your life. Consider using a pillbox or setting a timer.
Avoid hypoglycemia	Recognize the signs of hypoglycemia and take action to prevent it.
Check blood glucose	Establish a routine and act accordingly.
Check feet	Do a daily self-check and follow-up with a health-care provider if anything is abnormal.
Manage stress	Screen for distress (depressive and anxious symptoms) by interview or a standardized questionnaire (e.g. PHQ-9 www.phqscreeners.com).
Reduce or stop smoking	Identify barriers to quitting and develop a plan to address each of these.

ABCDES of diabetes care

2020

		GUIDELINE TARGET (or personalized goal)
A	A1C targets	A1C ≤7.0% (or ≤6.5% to ↓ risk of CKD and retinopathy) If on insulin or insulin secretagogue, assess for hypoglycemia and ensure driving safety
B	BP targets	BP <130/80 mmHg If on treatment, assess for risk of falls
C	Cholesterol targets	LDL-C <2.0 mmol/L (or >50 % reduction from baseline)
D	Drugs for CV and/or Cardiorenal protection	(non-AHA) • ACEi/ARB (if CVD, age ≥55 with risk factors, OR diabetes complications) • Statin (if CVD, age ≥40 for type 2, OR diabetes complications) • ASA (if CVD) (Antihyperglycemic Agents) • SGLT2i/GLP1-RA with demonstrated cardiorenal benefits in high risk type 2 with ASCVD, CKD or HF, OR Age >60 with 2 CV risk factors
E	Exercise goals and healthy eating	• 150 minutes of moderate to vigorous aerobic activity/ week and resistance exercises 2-3 times/week • Follow healthy dietary pattern (eg Mediterranean diet, low glycemic index)
S	Screening for complications	• Cardiac: ECG every 3-5 years if age >40 OR diabetes complications • Foot: Monofilament/Vibration yearly or more if abnormal • Kidney: Test eGFR and ACR yearly, or more if abnormal • Retinopathy: type 1 - annually; type 2 - q1-2 yrs
S	Smoking cessation	If smoker: Ask permission to give advice, arrange therapy and provide support
S	Self-management, stress, other barriers	• Set personalized goals (see "individualized goal setting" panel) • Assess for stress, mental health and financial or other concerns that might be barriers to achieving goals

DIABETES CANADA

Just the basics

Diabetes is a condition in which your body cannot properly use and store food for energy. The fuel that your body needs is called glucose, a form of sugar. Glucose comes from foods such as fruit, milk, some vegetables, starchy foods and sugar.

To control your blood sugar (glucose) you will need to eat healthy foods, be active and you may need to take pills and/or insulin.
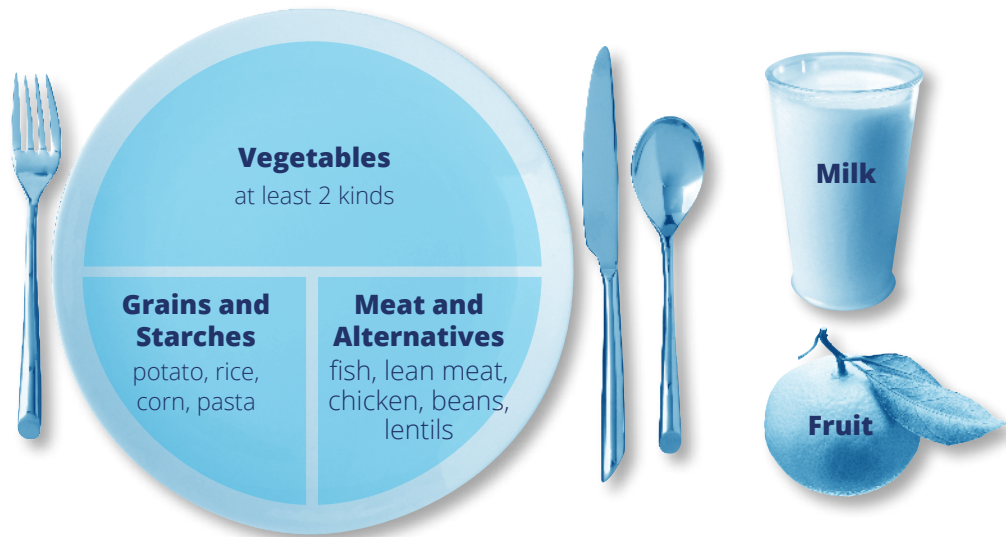
Here are some tips to help you until you see a registered dietitian.

Tips:	Reasons:
Eat three meals per day at regular times and space meals no more than six hours apart. You may benefit from a healthy snack.	Eating at regular times helps your body control blood sugar levels.
Limit sugars and sweets such as regular pop, desserts, candies, jam and honey.	The more sugar you eat, the higher your blood sugar will be. Artificial sweeteners can be useful substitutes.
Limit the amount of high-fat food you eat such as fried foods, chips and pastries.	High-fat foods may cause you to gain weight. A healthy weight helps with blood sugar control and is healthier for your heart.
Eat more high-fibre foods such as whole grain breads and cereals, lentils, dried beans and peas, brown rice, vegetables and fruits.	Foods high in fibre may help you feel full and may lower blood sugar and cholesterol levels.
If you are thirsty, drink water.	Drinking regular pop and fruit juice will raise your blood sugar.
Add physical activity to your life.	Regular physical activity will improve your blood sugar control.
Limit alcohol consumption.	Alcohol can affect blood sugar levels and cause you to gain weight.

Plan for healthy eating

Vegetables
at least 2 kinds

Grains and Starches
potato, rice, corn, pasta

Meat and Alternatives
fish, lean meat, chicken, beans, lentils

Milk

Fruit

- Eat more vegetables. These are very high in nutrients and low in calories.
- Choose lean animal proteins. Select more vegetable protein.
- Select plant oils such as olive and canola, and nuts instead of animal fats.
- Include low-glycemic-index foods such as legumes, whole grains, and fruits and vegetables.
- Consider learning about counting carbohydrates, and different types of eating patterns (e.g. Mediterranean, DASH) when you see a registered dietitian.

It's natural to have questions about what food to eat. A registered dietitian can help you include your favourite foods in a personalized meal plan.

Handy portion guide

Your hands can be very useful in estimating appropriate portions. When planning a meal, use the following portion sizes as a guide:
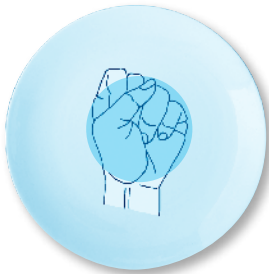
Grains and starches*/ Fruits*
Choose an amount the size of your fist for grains or starches, or fruit.

Milk and alternatives*
Drink up to 1 cup (250 mL) of low-fat milk with a meal.

Vegetables*
Choose as much as you can hold in both hands. Choose brightly coloured vegetables (e.g., green or yellow beans, broccoli).

Meat and alternatives*
Choose an amount the size of the palm of your hand and the thickness of your little finger.

Fat*
Limit fat to an amount the size of the tip of your thumb.

* Food group names taken from *Beyond the Basics: Meal Planning for Healthy Eating, Diabetes Prevention and Management.*
  © Canadian Diabetes Association, 2014.

- Diabetes Canada recommends that all people with diabetes should receive advice on nutrition from a registered dietitian.

- Be sure to eat breakfast. It provides a good start to the day.

- Try to prepare more of your meals at home and use whole, unprocessed ingredients.

- Eat together as a family more often to model healthy eating behaviours to children and teenagers.

- If you are planning on fasting, talk to your health-care team 1 to 2 months in advance.

Sample meal plan

For smaller appetites

Breakfast:
Cold cereal (½ cup, 125 mL)
Whole grain toast (1 slice)
1 orange
Low-fat milk (1 cup, 250 mL)
Peanut butter (2 tbsp, 30 mL)
Tea or coffee

Lunch:
1 sandwich
    2 slices of whole grain bread or 6" pita
    meat, chicken or fish (2 oz, 60 g)
    non-hydrogenated margarine (1 tsp, 5 mL)
Carrot sticks
Grapes (1/2 cup, 125 mL)
Low-fat plain yogurt (¾ cup, 175 mL)
Tea or coffee

Dinner:
Potato (1 medium) or rice (2⁄3 cup, 150 mL)
Vegetables
Non-hydrogenated margarine (1 tsp, 5 mL)
Lean meat, chicken, or fish (2 oz, 60 g)
Cantaloupe (1 cup, 250 mL)
Low-fat milk (1 cup, 250 mL)
Tea or coffee

Evening Snack:
Low-fat cheese (1 oz, 30 g)
Whole grain crackers (4)

Increase your physical activity

- Build time for physical activity into your daily routine.

- Try to be active most days of the week.

- Walk whenever you can, instead of taking the car.

- Start slowly and gradually increase the amount of effort; for instance, progress from strolling to brisk walking.

- Make family activities active; try swimming or skating instead of watching TV or a movie.

- Try new activities; learn to dance, play basketball, or ride a bike.

- Enjoy your improved sense of health and well-being.

Follow a healthy lifestyle

- Have at least 3 out of the 4 key food groups at each meal from *Eating Well with Canada's Food Guide:*
  - vegetables and fruit
  - grain products
  - milk and alternatives
  - meat and alternatives

- Have portion sizes that will help you reach or maintain a healthy body weight.

- Include high-fibre foods such as whole grain breads, cereals, and pastas, fresh fruits, vegetables and legumes.

- Make lower fat choices (e.g. use skim milk and lean ground beef, trim fat on meat, chicken etc., and use small amounts of added fat such as oil and salad dressings).

- Healthy eating habits should be built around a healthy lifestyle – keep active every day.

Sample meal plan

For bigger appetites

Breakfast:
Cold cereal (½ cup, 125 mL)
Whole grain toast (2 slices)
1 orange
Low-fat milk (1 cup, 250 mL)
Low-fat cheese (2 oz, 60 g)
Tea or coffee

Lunch:
Soup (1 cup, 250 mL)
Sandwich
    2 slices whole grain bread or 6" pita
    lean meat, chicken or fish (3 oz, 90 g)
    tomato slices
    non-hydrogenated margarine (1 tsp, 5 mL)
Carrot sticks
Grapes (1/2 cup, 125 mL)
Low-fat plain yogurt (¾ cup, 175 mL)
Tea or coffee

Afternoon Snack:
1 medium apple or small banana

Dinner:
1 large potato or cooked noodles (1½ cup, 375 mL)
Vegetables
Green salad with low-fat salad dressing
Lean meat, chicken or fish (4 oz, 120 g)
1 medium pear
Low-fat milk (1 cup, 250 mL)
Tea or coffee

Evening Snack:
Peanut butter (4 tbsp, 60 mL)
Whole grain crackers (4)
Low-fat milk (1 cup, 250 mL)

Related articles: *Physical activity and diabetes, Glycemic index, Eating away from home, Alcohol and diabetes, Managing weight and diabetes*

The Balanced Food Plate

¼ protein foods

water

½ non-starchy vegetables and fruit

¼ whole grains and starchy vegetables

Use your plate to build a nutritious meal!

Fill ½ your plate with non-starchy vegetables and fruit. Include a variety of vegetables such as dark leafy greens, broccoli, cucumber, carrot, zucchini, cauliflower, or bell pepper. Include a small portion of fruit such as 1 cup of berries, or a small apple with your meal or as a snack.

Fill ¼ of your plate with protein foods such as kidney beans, split peas, lentils, soy products like tofu or tempeh, eggs, chicken, turkey, lean cuts of beef or pork, nuts and seeds, fish and shellfish, and low-fat dairy products. Choose vegetable proteins more often.

Fill ¼ of your plate with whole grains and starchy vegetables such as pasta, oats, brown rice, quinoa, barley, bulgur, potato, sweet potato or corn.

It's natural to have questions about what food to eat. A registered dietitian can help you learn about food and how to include your favourite foods in a healthy way.

Visit **www.diabetes.ca**
for more healthy eating tips and recipes!

DIABETES CANADA

Alcohol and diabetes

As a general rule, there is no need to avoid alcohol because you have diabetes.

You *should not* drink alcohol if you:

- are pregnant or trying to get pregnant
- are breastfeeding
- have a personal or family history of drinking problems
- are planning to drive or engage in other activities that require attention or skill
- are taking certain medications. Ask your pharmacist about your medications.

Consider the following questions when deciding what is best for you.

		Yes	No
1	Is my diabetes under control?	☐	☐
2	Am I free from health problems that alcohol can make worse such as disease of the pancreas, eye disease, high blood pressure, high triglycerides, liver problems, nerve damage or stroke?	☐	☐
3	Do I know how to prevent and treat low blood sugar?	☐	☐

If you answered "no" to any of these questions, you should speak to your diabetes educator or health-care professional before drinking alcohol.

If you answered "yes" to all of these questions, it is OK to drink alcohol in moderation.

Moderate alcohol intake is limited to 2 standard drinks/ day or less than 10 drinks/ week for women; and limited to 3 standard drinks/ day or less than 15 drinks/ week for men.

This recommendation is the same for people without diabetes. For people with high blood pressure, alcohol should be limited to 1 drink/day for women and 2 drinks/day for men.

What is a "standard drink"?

1 standard drink (10 g of alcohol):

Beer
341 mL (12 fl.oz)
of regular strength beer
(5% alcohol)

Spirits
43 mL (1.5 fl.oz) of spirits
(40% alcohol)

Wine
142 mL (5 fl.oz) of wine
(12% alcohol)

Note: If you are carbohydrate counting, do not take insulin for the carbohydrate content of alcoholic drinks.

Health risks of alcohol use

You may have heard that alcohol has certain health benefits. However, any pattern of drinking can be harmful. Proven ways of improving your health include: healthy eating, being active, and being a non-smoker.

The Diabetes Canada Clinical Practice Guidelines recommend that:

- People with type 1 diabetes should be aware that moderate consumption of alcohol with, or 2 to 3 hours after, an evening meal may result in delayed low blood sugar (hypoglycemia) the next morning after breakfast, or up to 24 hours after alcohol consumption. This also applies to people with type 2 diabetes who are using insulin or insulin secretagogues.

- Alcohol should be limited to 2 standard drinks/ day or less than 10 drinks/ week for women, and limited to 3 standard drinks/ day or less than 15 drinks/ week for men.

- People with diabetes should discuss alcohol use with their diabetes health-care team.

Risks for people with diabetes

Alcohol can:

- affect judgement
- provide empty calories that might lead to weight gain if taken in excess
- increase blood pressure and triglycerides
- cause damage to liver and nerves including brain and sexual organs
- contribute to inflammation of the pancreas
- dehydrate the body which is very dangerous in someone with high blood sugar
- worsen eye disease

For young people in particular, alcohol use:

- can lead to addiction
- is associated with a dramatic increase in injuries and death

For those on insulin or some diabetes medications

Drinking alcohol can increase your risk of having low blood sugar. To reduce this risk, take the following steps:

BEFORE drinking alcohol

Eat regular meals, take your medication(s), and check your blood sugar levels frequently (keep your blood glucose meter with you).

- Always have a treatment for low blood sugar with you (such as 3 glucose tablets or 150 mL regular pop or 6 Life Savers®).
- Wherever you are, make sure someone with you knows your signs and symptoms of low blood sugar and how to treat it so they can help you.
- Be aware that glucagon, a treatment for low blood sugar, will not work while alcohol is in the body. Because of this, make sure that someone knows to call an ambulance if you pass out.
- Wear diabetes identification such as a MedicAlert® bracelet.

WHILE drinking alcohol

- Eat carbohydrate-rich foods when drinking alcohol. Some ideas:

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- Eat extra carbohydrate-rich foods if you are dancing, playing sports or doing other physical activity.
- Always pour your own drinks. Use less alcohol and stretch your drinks with sugar-free mixes.
- Drink slowly. Make your second drink without alcohol.

AFTER drinking alcohol

- Tell a responsible person that you have been drinking. They should look for low blood sugar symptoms.

(eg.) _____

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- Check your blood sugar before going to bed. Eat a carbohydrate snack if your blood sugar is lower than usual.
- Set an alarm or have a responsible person wake you up through the night and early morning – a delayed low blood sugar can occur **anytime up to 24 hours** after drinking alcohol.
- You need to get up on time the next day for any food, medication or insulin you normally take. Missed medication or insulin can lead to high blood sugar, ketones and diabetic ketoacidosis (DKA).

Carbohydrate and calorie content in some common alcoholic beverages and mixes

(The amounts listed are a general guide only)

Beverage	Standard serving size	Energy (kcal)	Carbohydrate content (g)
Beer:			
regular	341 mL (12 fl.oz)	147	12
light	341 mL (12 fl.oz)	99	6
non-alcoholic*	355 mL (~12 fl.oz)	40-80	9-17
low carb*	341 mL (12 fl.oz)	96	3
Spirits/Hard liquor	43 mL (1.5 fl.oz)	98	0
Liqueurs & Cordials	43 mL (1.5 fl.oz)	155-190	10-25
Wine:			
regular	142 mL (5 fl.oz)	106-127	2-4
dessert	142 mL (5 fl.oz)	233-243	18-21
non-alcoholic	142 mL (5 fl.oz)	9	2
Cooler:			
regular	355 mL (12 fl.oz)	178-258	21-38
light*	330 mL (12 fl.oz)	100	1
Mixes:			
Sugar free pop	250 mL (8 fl.oz)	0	0
Regular pop	250 mL (8 fl.oz)	107	28
Club soda	250 mL (8 fl.oz)	0	0
Tonic water	250 mL (8 fl.oz)	88	23
Orange juice	250 mL (8 fl.oz)	118	27
Tomato juice	250 mL (8 fl.oz)	44	9
Tomato and clam juice	250 mL (8 fl.oz)	123	28

Reference: Canadian Nutrient File, 2018; USDA Food Composition Databases, 2018; *Actual Label
The caloric and carbohydrate content may vary by brand, be sure to check the labels

THE BOTTOM LINE

- If you do not drink alcohol, don't start.
- If you choose to drink alcohol, intake should be moderate (daily intake should be limited to 2-3 drinks for adult men and 1-2 drinks for adult women). When drinking alcohol, make sure you know how to prevent and treat low blood sugar.
- Heavy alcohol drinkers (more than 21 drinks/week for men and more than 14 drinks/week for women) are strongly advised to reduce the amount of alcohol they drink. Heavy alcohol use can make blood sugar control more difficult and increases other health risks.
- Talk to your diabetes educator or health-care professional if you have questions.

Related article: *High blood pressure and diabetes*

DIABETES CANADA

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