

Diabetes Tools for Your Practice

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Presenter Disclosure

Presenter: **Susie Jin**

Relationships with financial sponsors:

- Any direct financial relationships, including receipt of honoraria: **Abbott, AbbvieAbbVie, Boehringer Ingelheim, Dexcom, Eisai, GlaxoSmithKline, Kenvue, Lilly, Moderna, NovoNordisk, Pfizer, Sanofi**
- Membership on advisory boards or speakers' bureaus: **Abbvie, Dexcom, Eisai, NovoNordisk**
- Patents for drugs or devices: **None**
- **Other:** **CAPT (Canadian Association of Pharmacy Technicians), Canadian Pharmacists Association (CPhA), Diabetes Canada, Manitoba Pharmacists Association, Ontario Pharmacists Association, Sun Life, Wounds Canada**
CCRN (Canadian Collaborative Research Network), CPDnetwork, EnsembleIQ, EOCI Health, ICI MedComm, MedPlan, Impact Education, IQVIA, KnightLabs MDBriefCase, MedEssist, Operatic Agency, Pear Healthcare, Peer Voice, PPME (Partners in Progressive Medical Education), Q.I.D., The Rounds, STA Health, Synapse

Presenter Disclosure

Presenter: James Kim

Relationships with financial sponsors:

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- Patents for drugs or devices: None
- Other: University of Calgary, Diabetes Canada, Migraine Canada, SACME, Global NASH Council, PPME

Disclosure of Financial Support

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Potential for conflict(s) of interest:

None

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Mitigating Potential Bias

The FMF Committee has mitigated the bias for this presentation as follows:

- Presenter agrees to adhere to all Mainpro+ and National Standards
- Presenter has received the COI Quick Tips document
- Presenter agrees to present only evidence-based content or declare otherwise
- Presenter agrees to refrain from using brand names wherever possible
- Presenter agrees to include COI slides and verbal mention in each presentation

UPDATED FOR 2024

Clinical Practice Guidelines Quick Reference Guide



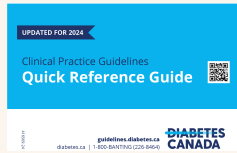
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**DIABETES
CANADA**



Quick Reference Guide



Screening of Type 2 Diabetes

Screening factors for Type 2 Diabetes ANNOUALLY

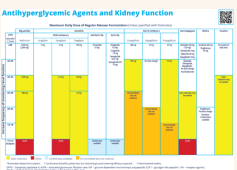
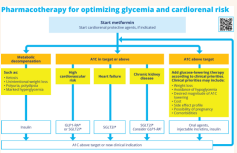
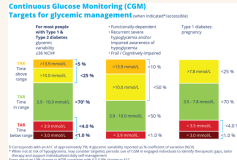
Age	Weight	Family History	Other Risk Factors
40-69	≥ 30 kg/m ²	≥ 1st degree	Other risk factors
70-79	≥ 27 kg/m ²	≥ 2nd degree	Other risk factors

ATC Targets for glycemic management

ATC	Target
HbA1c	< 7.0% (individualized)
Fasting Plasma Glucose (FPG)	< 5.6 mmol/L
2-hr Postprandial Glucose (PPG)	< 8.0 mmol/L

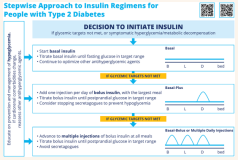
Blood Glucose (BG) Targets for glycemic management

Time of Day	Target Range (mmol/L)
Pre-meal	4.0 - 6.0
Post-meal (1-2 hrs)	5.0 - 10.0
Bedtime	4.0 - 8.0



Drugs for Cardiovascular and/or Renal Protection

Drug Class	Examples
ACE Inhibitors	Lisinopril, Ramipril
ARBs	Losartan, Valsartan
CCBs	Amlodipine, Nifedipine
Diuretics	Furosemide, Hydrochlorothiazide
Beta-blockers	Carvedilol, Nebivolol



Hypoglycemia: Identifying and Treating

Signs and Symptoms	Treatment
Sweating, Trembling, Hunger, Irritability	15g of fast-acting carbohydrate
Blurred vision, Headache, Fatigue	15g of fast-acting carbohydrate

Keeping people with diabetes safe when they are at risk of hypoglycemia

Prevention Strategy	Target
Individualized goal setting	Personalized HbA1c target
Education and self-management	Improved understanding of hypoglycemia
Medication review	Optimized insulin doses

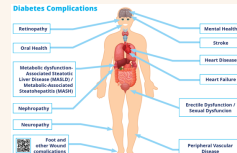
Special considerations regarding pregnancy for women with type 1 or type 2 diabetes

Women with diabetes should be counseled on the risks of pregnancy and the importance of maintaining good glycemic control. Key considerations include:

- Preconception care:** Optimize HbA1c before pregnancy.
- Medication safety:** Avoid teratogenic drugs like ACE inhibitors and ARBs.
- Monitoring:** Frequent glucose monitoring and regular prenatal visits.
- Delivery and postpartum care:** Monitor for hypoglycemia and adjust insulin doses.

Individualized goal setting

Goal	Target
HbA1c	< 7.0% (individualized)
Fasting Plasma Glucose	< 5.6 mmol/L
2-hr Postprandial Glucose	< 8.0 mmol/L



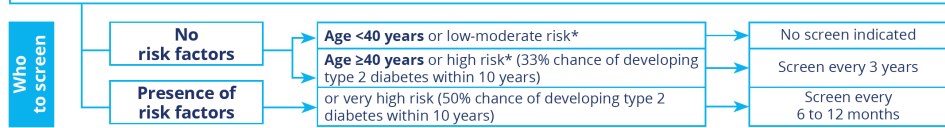
ABCDEF of diabetes care

Letter	Target
A	Individualized HbA1c target
B	Blood pressure < 130/80 mmHg
C	Cholesterol management
D	Diabetes education and self-management
E	Exercise and weight management
F	Foot care and smoking cessation

Screening of Type 2 Diabetes

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)



How to screen	Test	Result	Dysglycemia category
A1C (%)†		6.0 – 6.4	Prediabetes
		≥6.5	Diabetes
FPG (mmol/L) No caloric intake for at least 8 hours		6.1 – 6.9	Impaired Fasting Glucose (IFG)
		≥7.0	Diabetes

Diagnosis of Diabetes (see CPG “Diabetes and Pregnancy” Chapter for diagnosis of gestational diabetes)

IF	Diagnosis of diabetes	Comments
ASYMPTOMATIC	TWO (2) results (A1C +/- FPG) in the diabetes range – [2 nd result confirms the diagnosis in absence of symptoms]	E.g., when one A1C in diabetes range, order a repeat A1C test in a timely manner to confirm the diagnosis of diabetes, or if both A1C and FPG in diabetes range, diagnosis can be made immediately
Symptoms of overt hyperglycemia present‡	only ONE (1) result in the diabetes range	In addition to A1C and FPG, diagnosis can be made with: 2hPG in a 75g OGTT or Random PG >11.1 mmol/L

* using a validated risk calculator (e.g., CANRISK)
 † Be aware of factors that affect A1C accuracy (see CPG Chapter 9, Table 1)
 ‡ Symptoms of overt hyperglycemia, e.g., polyuria, polydipsia, polyphagia, recent unexplained weight loss

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A1C Targets for glycemic management

A1C (%)	Targets
<6.0	Selected adults with type 2 diabetes with potential for remission to normoglycemia
≤6.5*	Adults with type 2 diabetes to reduce the risk of chronic kidney disease and retinopathy if at low risk of hypoglycemia†
≤7.0	MOST ADULTS WITH TYPE 1 OR TYPE 2 DIABETES
7.1	7.1-8.0%: Functionally dependent‡
↓	7.1-8.5%:
8.5	<ul style="list-style-type: none"> • Recurrent severe hypoglycemia and/or hypoglycemia unawareness • Frail individuals and/or with cognitive impairment‡ • Limited life expectancy

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.

* Target 6.0 to <6.5 for adults with type 2 diabetes with potential for remission to prediabetes

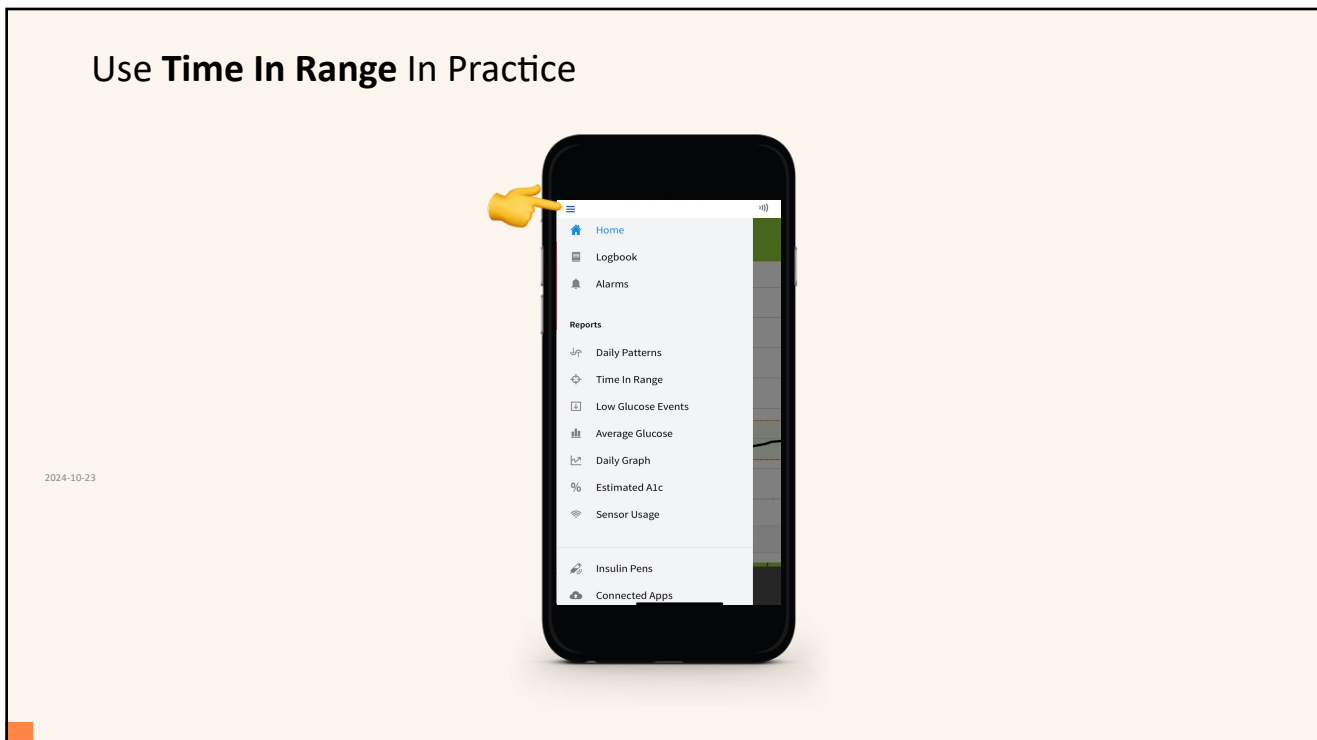
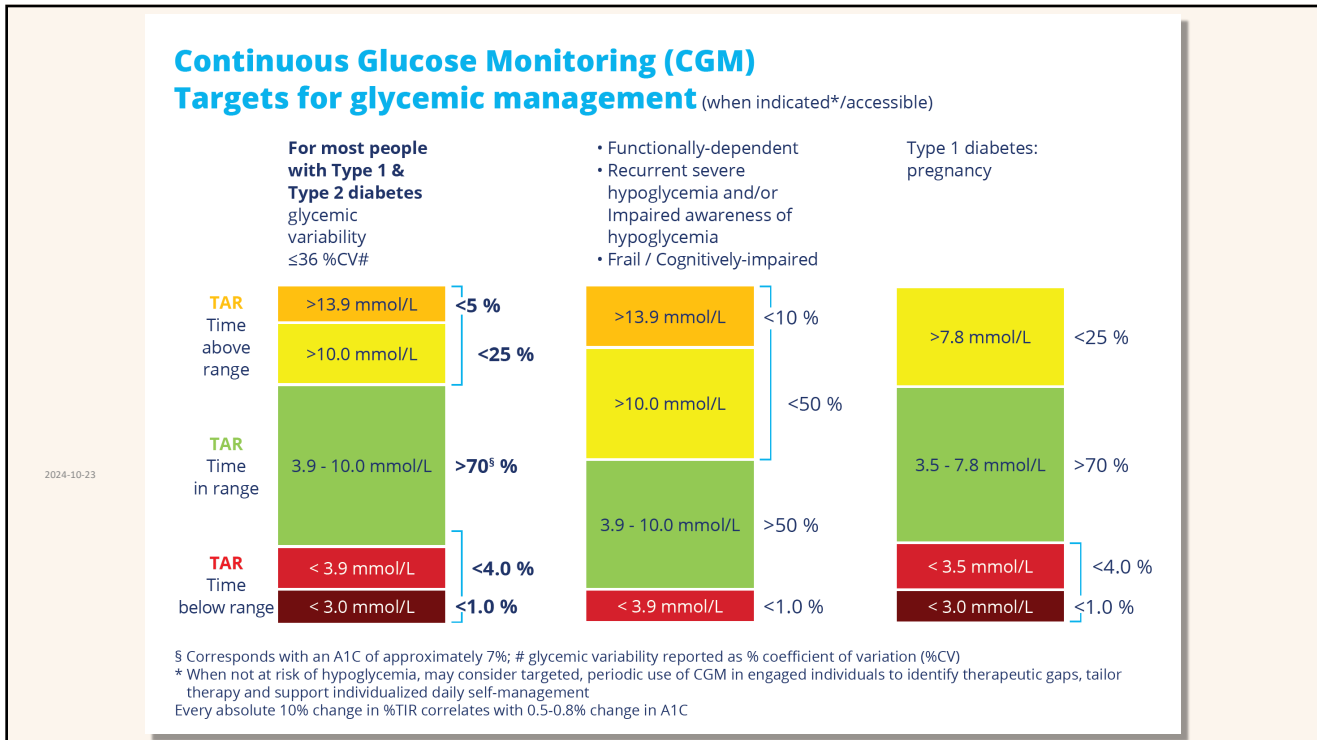
† Based on class of antihyperglycemic medication(s) utilized and the person's characteristics

‡ See Diabetes in Older People chapter

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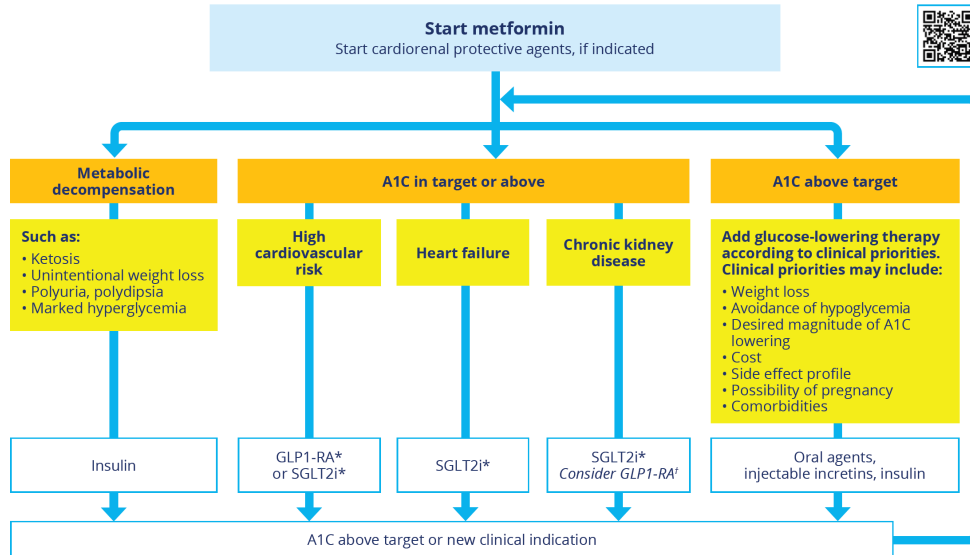
Blood Glucose (BG) Targets for glycemic management (when indicated/accessible)

Blood Glucose (BG) Targets	Fasting / Preprandial BG (mmol/L)	2-hr Postprandial BG (mmol/L)
For most people with diabetes	4.0 – 7.0	5.0 – 10.0



Pharmacotherapy for optimizing glycemia and cardiorenal risk

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* Choose an agent that has demonstrated evidence of benefit, refer to the text.
† Based on the FLOW trial that was not reviewed for this update, refer to the text.
GLP1-RA = glucagon-like peptide-1 receptor agonist; SGLT2i = sodium-glucose cotransporter-2 inhibitor

Antihyperglycemic Agents and Kidney Function

2024-10-23

Maximum Daily Dose of Regular Release Formulation (Unless specified with footnotes)

eGFR (mL/min/1.73 m ²)	Biguanides	Incretins			GIP/GLP1-RA	GLP1-RA	SGLT2 Inhibitors			Secretagogues	Others	Insulins
		DPP4 Inhibitors					Canagliflozin	Dapagliflozin	Empagliflozin			
≥60	Metformin 2,550 mg (2,800 mg) [†]	Linagliptin 5 mg	Saxagliptin 5 mg	Sitagliptin 100 mg	Tirzepatide 15 mg [‡]	Dulaglutide 4.5 mg [‡] Liraglutide 1.8 mg Semaglutide SQ 2 mg [‡] Semaglutide PO 14 mg	300 mg	10 mg	25 mg	Gliclazide 320 mg; (120 mg) [‡] Pioglitazone 45 mg Glimepiride 8 mg Glyburide 20 mg Repaglinide 12mg	Acarbose 300 mg Pioglitazone 45 mg	No maximum daily dose
45-59							100 mg [‡]	No dose change [‡]	10 mg [‡]	Gliclazide, Glimepiride, Repaglinide - No dose change Avoid Glyburide		
30-44	1,000 mg		2.5 mg	50 mg								Dose reduction may be needed
25-29	500 mg			25 mg			Do not initiate but can continue [‡]					
20-24								Do not initiate but can continue [‡]				
15-19									Do not initiate but can continue [‡]			
<15 or Dialysis	Avoid		Avoid		Limited data available	Limited data available					Pioglitazone - No dose change Acarbose - Limited data available	

■ Dose reduction ■ Avoid ■ Limited data available ■ Do not initiate but can continue
*Extended release formulation † Cardiorenal benefits preserved, but reduced glucose-lowering efficacy expected ‡ Administered weekly
DPP4 = Dipeptidyl peptidase 4; eGFR = estimated glomerular filtration rate; GIP = glucose-dependent insulinotropic polypeptide; GLP1 = glucagon-like peptide-1; RA = receptor agonist;
SGLT2 = sodium-glucose cotransporter-2; SQ = subcutaneous; PO = oral

GLP-1 Receptor Agonist

Dual GIP/GLP-1 Receptor Agonist

Common medications	Dual GLP-1 RA: dulaglutide (Trulicity®), liraglutide (Victoza®), semaglutide (Ozempic®/Rybelsus®) Dual GIP/GLP-1 RA: tirzepatide (Mounjaro®)															
Type of drug	Incretin mimetic															
Cardiorenal benefits in high- risk populations*	<ul style="list-style-type: none"> Heart protection: reduces the risk of heart attacks Brain protection: reduces the risk of strokes Kidney protection: reduces albuminuria (protein in the urine) 															
Blood glucose lowering and weight-reducing action	<ul style="list-style-type: none"> Increases the body's response to blood sugar: Increases the body's own insulin levels (to lower blood sugar) and decreases glucagon (a hormone that raises blood sugar) Sugar-dependent action: stronger blood sugar-lowering when blood sugars are above-target; weak (or no) blood sugar-lowering when blood sugars are at- or below-target (medication on its own does not cause low blood sugars, but may have low blood sugar with other diabetes medications) Slows the emptying of the stomach – promotes feeling full (not hungry) Can lower blood pressure slightly <table border="1"> <thead> <tr> <th></th> <th>Glucose-lowering efficacy</th> <th>A1C-lowering (%)</th> <th>Weight-lowering (kg)</th> </tr> </thead> <tbody> <tr> <td>GLP-1 RA</td> <td>High to very high</td> <td>0.6 – 1.4</td> <td>1.1 - 4.4</td> </tr> <tr> <td>Dual GIP/GLP-1 RA</td> <td>Very high</td> <td>1.7 – 2.4</td> <td>5.4 - 11.3</td> </tr> </tbody> </table>					Glucose-lowering efficacy	A1C-lowering (%)	Weight-lowering (kg)	GLP-1 RA	High to very high	0.6 – 1.4	1.1 - 4.4	Dual GIP/GLP-1 RA	Very high	1.7 – 2.4	5.4 - 11.3
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GLP-1 RA	High to very high	0.6 – 1.4	1.1 - 4.4													
Dual GIP/GLP-1 RA	Very high	1.7 – 2.4	5.4 - 11.3													
Dosing	Initiation dose	Minimum maintenance dose	Minimum demonstrated cardiorenal protective dose*	Potential dose escalations for additional glucose-/ weight-lowering												
Dulaglutide [†]	0.75mg	0.75mg	1.5mg	3mg, 4.5mg												
Liraglutide [‡]	0.6mg	1.2mg	1.8mg	– (2.4mg, 3.0mg) [§]												
Semaglutide s.c. [†]	0.25mg	0.5mg	0.5mg	1mg, 2mg (1mg, 1.7mg, 2.4mg) [§]												
Semaglutide p.o. [#]	3mg	7mg	–	14mg												
Tirzepatide [†]	2.5mg	5mg	–	7.5mg, 10mg 12.5mg, 15mg												
	<p>† administer once weekly and consider dose escalations at a minimum 4-week interval; ‡ administer daily and consider dose escalations at a minimum 7-day interval # administer once daily and consider dose escalations at a minimum 30-day interval * cardiorenal protection currently demonstrated for dulaglutide, liraglutide & semaglutide s.c. § doses indicated for chronic weight management</p> <p>Continued</p>															

GLP-1 Receptor Agonist

Dual GIP/GLP-1 Receptor Agonist (continued)

Medication considerations and/or side effects	<ul style="list-style-type: none">• GI adverse effects, e.g. nausea, diarrhea/constipation, vomiting, can often be avoided or reduced with attention to food choices• To reduce possible GI upset: Eat smaller meals, stop eating when not hungry, avoid spicy and/or fatty foods, stay hydrated (i.e. drink water)• With GI upset: consider extending the interval between dose up-titrations and/or reducing the up-titration dose• If low blood sugars occur: assess and adjust (decrease/stop) other medications associated with hypoglycemia such as insulin secretagogue and insulin• With known diabetic eye disease (retinopathy), semaglutide should be started with your eye doctor's knowledge• See an eye doctor (ophthalmologist or optometrist) every 1 to 2 years specifically to look at the blood vessels at the back of the eye (retina)
Cautions	<ul style="list-style-type: none">• History of pancreatitis, pancreatic cancer• Can increase heart rate by 7-8 bpm & prolong PR interval by 10ms• Limited clinical experience in GFR <15 mL/min/1.73m² or on dialysis
Contraindications	<ul style="list-style-type: none">• Personal or family history of medullary thyroid carcinoma (MTC), multiple endocrine neoplasia syndrome in type 2 (MEN 2), pregnancy and breastfeeding

SGLT2 inhibitor

Common medications	canagliflozin (Invokana®/Invokamet®) dapagliflozin (Forxiga®/Xigduo®) empagliflozin (Jardiance®/Synjardy®)														
Cardiorenal benefits in high- risk populations	<ul style="list-style-type: none"> • Heart protection: reduces the risk of heart attacks and heart failure • Kidney protection: improves kidney function and reduces albuminuria (protein in the urine) 														
Blood glucose lowering and weight-reducing action	<ul style="list-style-type: none"> • Increases the body's ability to get rid of sugar through urine (pee) • Sugar-dependent action: stronger blood sugar-lowering when blood sugars are above target; weak (or no) blood sugar-lowering when blood sugars are at- or below-target (medication on its own does not cause low blood sugars, but may have low blood sugar with other diabetes medications) • Weak (or no) blood sugar-lowering when kidney function is low (eGFR <45 mL/min/1.73m²) <table border="1" data-bbox="532 814 1489 940"> <thead> <tr> <th></th> <th>Glucose-lowering efficacy</th> <th>A1C-lowering (%)</th> <th>Weight-lowering (kg)</th> </tr> </thead> <tbody> <tr> <td>SGLT2i</td> <td>Intermediate to high</td> <td>0.5 – 0.7</td> <td>2 – 3</td> </tr> </tbody> </table>				Glucose-lowering efficacy	A1C-lowering (%)	Weight-lowering (kg)	SGLT2i	Intermediate to high	0.5 – 0.7	2 – 3				
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Dosing	<table border="1" data-bbox="532 961 1489 1150"> <thead> <tr> <th></th> <th>Initiation once daily dose</th> <th>Maximum once daily dose for glucose lowering</th> </tr> </thead> <tbody> <tr> <td>Canagliflozin</td> <td>100mg</td> <td>300mg</td> </tr> <tr> <td>Dapagliflozin</td> <td>10mg*</td> <td>10mg</td> </tr> <tr> <td>Empagliflozin</td> <td>10mg</td> <td>25mg</td> </tr> </tbody> </table> <p>*clinically appropriate in Heart Failure and Kidney Disease. 5mg dose has not demonstrated cardiorenal protection</p>				Initiation once daily dose	Maximum once daily dose for glucose lowering	Canagliflozin	100mg	300mg	Dapagliflozin	10mg*	10mg	Empagliflozin	10mg	25mg
	Initiation once daily dose	Maximum once daily dose for glucose lowering													
Canagliflozin	100mg	300mg													
Dapagliflozin	10mg*	10mg													
Empagliflozin	10mg	25mg													
Special Considerations	<ul style="list-style-type: none"> • Monitor for genital mycotic (yeast) infections, counsel on genital hygiene • If experiencing dehydrating illness (e.g. vomiting, diarrhea, fever), implement SADMANS <ul style="list-style-type: none"> – fluid replacement with electrolytes – stop SGLT2i medication if unable to stay hydrated. Restart SGLT2i medication when eating and drinking normally • If taking loop diuretic: <ul style="list-style-type: none"> – if dehydrated, speak with your health-care provider • If taking insulin and/or insulin secretagogue and eGFR >45 mL/min/1.73m²: <ul style="list-style-type: none"> – If A1C ≤8.0%, consider dose reduction (i.e. 10-20% insulin and/or 50% insulin secretagogue) – With episodes of hypoglycemia, stop insulin secretagogue and reduce insulin dose <p>Continued</p>														

SGLT2 inhibitor (continued)

Special Considerations (continued)	<ul style="list-style-type: none">• Caution when combined with very low carbohydrate eating patterns and/or with suspected insulin deficiency• Risk of Diabetic Ketoacidosis (DKA), which may occur without hyperglycemia, rare in type 2 diabetes: treat promptly if suspected<ul style="list-style-type: none">– Signs of DKA may include nausea, vomiting, lack of appetite, abdominal pain, excessive thirst, difficulty breathing, confusion, unusual fatigue or sleepiness• Discontinue before scheduled surgery (e.g. 3–4 days), during critical illness, situations associated with high risk of acute kidney injury or during prolonged fasting• Good foot care always recommended – particularly in those with high-risk feet (loss of protective sensation, previous foot ulcer or amputation)• Small reduction in eGFR (<20%) expected when initiated
Cautions: Delay initiation of SGLT2i until condition resolved	<ul style="list-style-type: none">• Volume depletion• Low blood pressure (<95 mmHg)• Active Critical Limb Ischemia• Diabetic Ketoacidosis• Active genital mycotic infections (yeast infections)• Active urinary tract infection
Contraindications	<ul style="list-style-type: none">• Canagliflozin:<ul style="list-style-type: none">– contraindication in dialysis; do not initiate if eGFR <30mL/min/1.73m²• Dapagliflozin:<ul style="list-style-type: none">– contraindication in dialysis; do not initiate if eGFR <25mL/min/1.73m²• Empagliflozin:<ul style="list-style-type: none">– contraindication if eGFR <20mL/min/1.73m²

For more information see: [Stay Safe When You Have Diabetes and Are Sick or at Risk of Dehydration](#)

Drugs for Cardiovascular and/or Renal Protection



Does the individual have / Is the person :

Atherosclerotic Cardiovascular Disease • Coronary artery disease, Peripheral arterial disease, Cerebrovascular/carotid disease	GLP-1 RA¹ + SGLT2i¹ + Statin² + ACEi/ARB³ + ASA⁴
• Age >60 with ≥2 additional cardiovascular risk factors ⁵	GLP-1 RA¹ + SGLT2i¹ + Statin² + ACEi/ARB³
• Chronic Kidney Disease (eGFR <60 mL/min/1.73m ² , ACR ≥2.0 mg/mmol)	SGLT2i¹ + Statin² + ACEi/ARB³ +/- GLP-1 RA +/- finerenone⁶
• Heart Failure (see HF guidelines for other warranted therapies)	SGLT2i¹ + Statin² + ACEi/ARB³
• Retinopathy • Neuropathy • Left ventricular hypertrophy • Age ≥55 with additional cardiovascular risk factors ⁷	Statin² + ACEi/ARB³
• Age ≥40 • Age ≥30 and diabetes >15 years • Warranted for statin therapy based on the Canadian Cardiovascular Society (CCS) Lipid Guidelines • Metabolic dysfunction-Associated Steatotic Liver Disease (MASLD) ⁸	Statin²

2024-10-23

- 1 GLP-1 RA / SGLT2i: Should be given at doses that have demonstrated vascular protection. Not approved by Health Canada for use in type 1 diabetes.
- 2 See Canadian Cardiovascular Society (CCS) Lipid Guidelines for other warranted therapies. Dose adjustments if lipid targets not being met, e.g., LDL-C ≤2.0 mmol/L (non-HDL-C ≤ 2.6 mmol/L, apo B ≤ 0.8 g/L); or, with ASCVD, LDL-C ≤1.8 mmol/L (non-HDL-C ≤2.4 mmol/L, apo B ≤0.7 g/L)
- 3 ACE-inhibitor or ARB should be given at doses that have demonstrated vascular protection (e.g., perindopril 8 mg once daily [EUROPA trial], ramipril 10 mg once daily [HOPE trial], telmisartan 80 mg once daily [ONTARGET trial]).
- 4 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.
- 5 Tobacco user: dyslipidemia (use of a 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 ≥90 mmHg); central obesity
- 6 Adult with type 2 diabetes
- 7 TC > 5.2 mmol/L, HDL-C < 0.9 mmol/L, hypertension, albuminuria, smoking

Prescription for Cardiovascular Protection with diabetes

Prescriber's Name: _____

Patient's Name: _____

Address: _____

Address: _____

Tel: _____

Fax: _____

Tel: _____

STEP 1:	STEP 2: Choose Cardiovascular protection agent(s) from the following list	Dosing
Is the person... <input type="checkbox"/> Age >40? <input type="checkbox"/> Age >30, and diabetes >15 years? <input type="checkbox"/> Warranted for statin therapy based on the Canadian Cardiovascular Society Lipid Guidelines? <input type="checkbox"/> MASLD (Metabolic dysfunction Associated Liver Disease) ⁸ YES	Statin <input type="checkbox"/> Atorvastatin (Lipitor®) <input type="checkbox"/> 10 mg (start 10 mg OD) <input type="checkbox"/> 20 mg <input type="checkbox"/> 40 mg <input type="checkbox"/> 80 mg (max 80 mg OD) <input type="checkbox"/> Fluvastatin (Lescol®) <input type="checkbox"/> 20 mg (start 20 mg OD) <input type="checkbox"/> 40 mg <input type="checkbox"/> 80 mg (max 80 mg OD) <input type="checkbox"/> Pravastatin (Pravachol®) <input type="checkbox"/> 10 mg (start 10 mg OD) <input type="checkbox"/> 20 mg <input type="checkbox"/> 40 mg <input type="checkbox"/> 80 mg (max 80 mg OD) <input type="checkbox"/> Fluvastatin (Lescol®) <input type="checkbox"/> 20 mg (start 20 mg OD) <input type="checkbox"/> 40 mg <input type="checkbox"/> 80 mg (max 80 mg OD) <input type="checkbox"/> Rosuvastatin (Crestor®) <input type="checkbox"/> 5 mg <input type="checkbox"/> 10 mg (start 10 mg OD) <input type="checkbox"/> 20 mg <input type="checkbox"/> 40 mg (max 40 mg OD) <input type="checkbox"/> Simvastatin (Zocor®) <input type="checkbox"/> 10 mg (start 10 mg OD) <input type="checkbox"/> 20 mg <input type="checkbox"/> 40 mg (max 80 mg OD)	Dosing: see start and maximum doses listed for each statin. High-intensity statin therapy (lowers LDL-C by ≥50%) - Atorvastatin 40-80 mg - Rosuvastatin 20-40 mg Moderate-intensity statin therapy (lowers LDL-C by 30-49%) - Atorvastatin 10-20 mg - Rosuvastatin 5-10 mg - Simvastatin 20-40 mg - Pravastatin 40-80 mg - Lovastatin 40 mg - Fluvastatin 80 mg
Is the person... <input type="checkbox"/> Age >50 with ≥1 CV risk factor? Does the person have... <input type="checkbox"/> Retinopathy <input type="checkbox"/> Neuropathy <input type="checkbox"/> Left Ventricular Hypertrophy YES	Statin + ACEi or ARB <input type="checkbox"/> Perindopril (Acron®/Coversyl®) <input type="checkbox"/> 2 mg <input type="checkbox"/> 4 mg (start 4 mg OD) <input type="checkbox"/> 8 mg* (max 16 mg OD) <input type="checkbox"/> Ramipril (Altace®) <input type="checkbox"/> 1.25 mg <input type="checkbox"/> 2.5 mg (start 2.5 mg OD) <input type="checkbox"/> 5 mg <input type="checkbox"/> 10 mg* (max 20 mg OD) <input type="checkbox"/> Telmisartan (Micardis®) <input type="checkbox"/> 20 mg <input type="checkbox"/> 40 mg (start 40 mg OD) <input type="checkbox"/> 80 mg* (max 80 mg OD)	Dosing: see start and maximum doses listed. Increase doses at 2-3 week intervals. *ACE-inhibitor or ARB (angiotensin receptor blocker) should be given at doses that have demonstrated vascular protection. Educate on sick day prevention and management .
Is the person... <input type="checkbox"/> Age >60 with ≥2 CV risk factors? YES	Statin + ACEi or ARB + GLP-1ra and/or SGLT2i <input type="checkbox"/> GLP-1 RECEPTOR AGONIST (not approved by Health Canada for use in type 1 diabetes) <input type="checkbox"/> Dulaglutide (Trulicity®) <input type="checkbox"/> 0.75 mg s.c. once weekly <input type="checkbox"/> 1.5 mg* s.c. once weekly <input type="checkbox"/> Liraglutide (Victoza®) <input type="checkbox"/> 0.6 mg s.c. OD <input type="checkbox"/> 1.2 mg s.c. OD <input type="checkbox"/> 1.8 mg* s.c. OD <input type="checkbox"/> Semaglutide (Ozempic®) <input type="checkbox"/> 0.25 mg s.c. once weekly <input type="checkbox"/> 0.5 mg* s.c. once weekly <input type="checkbox"/> 1 mg* s.c. once weekly <input type="checkbox"/> 2 mg* s.c. once weekly	Dosing: See Renal Dosing Chart for doses in CKD. Dose should be up-titrated to a minimum dose that has demonstrated cardiovascular benefit. GLP-1ra dosing considerations: start at low doses and titrate up slowly to reduce gastrointestinal side effects.
Does the person have... <input type="checkbox"/> Heart Failure See HF guidelines for other warranted therapies YES	Statin + ACEi or ARB + SGLT2i and/or GLP-1ra <input type="checkbox"/> SGLT2 INHIBITOR (not approved by Health Canada for use in type 1 diabetes) <input type="checkbox"/> Canagliflozin (Invokana®) <input type="checkbox"/> 100 mg* OD <input type="checkbox"/> 300 mg* OD <input type="checkbox"/> Dapagliflozin (Forxiga®) <input type="checkbox"/> 5 mg OD <input type="checkbox"/> 10 mg* OD <input type="checkbox"/> Empagliflozin (Jardiance®) <input type="checkbox"/> 10 mg* OD <input type="checkbox"/> 25 mg* OD	SGLT-2i dosing considerations: All SGLT-2i can be started at GFR >30 mL/min/1.73m ² and may be continued if GFR falls below 30 mL/min/1.73m ² . If risk of dehydration cannot be managed, provide education on sick day management .
Does the person have... <input type="checkbox"/> Kidney disease (ACR ≥2.0 mg/mmol and/or eGFR <60 mL/min/1.73m ²) YES	Statin + ACEi or ARB + SGLT2i and/or GLP-1ra +/- finerenone <input type="checkbox"/> NONSTEROIDAL MINERALOCORTICOID RECEPTOR ANTAGONIST (nsMRA) <input type="checkbox"/> Finerenone (Kerendia®) ⁹ when CKD with albuminuria <input type="checkbox"/> 10 mg OD starting dose if eGFR ≥ 25 to < 60 mL/min/1.73m ² <input type="checkbox"/> 20 mg OD starting dose if eGFR ≥ 60 mL/min/1.73m ²	Finerenone dosing considerations: See product monograph for initiation, continuation and dose adjustments based on serum potassium.
Does the person have ASCVD? <input type="checkbox"/> Coronary artery disease <input type="checkbox"/> Peripheral arterial disease <input type="checkbox"/> Cerebrovascular/carotid disease YES	Statin + ACEi or ARB + GLP-1ra and/or SGLT2i + ASA <input type="checkbox"/> ASA <input type="checkbox"/> 81 mg OD <input type="checkbox"/> 162 mg OD <input type="checkbox"/> Clopidogrel (Plavix®) for those unable to tolerate ASA <input type="checkbox"/> 75 mg OD	See CCS Lipid Guidelines for other warranted therapies. Dose adjustments if lipid targets not being met, e.g., LDL-C ≤2.0 mmol/L (non-HDL-C ≤ 2.6 mmol/L, apo B ≤ 0.8 g/L); or, with ASCVD, LDL-C ≤1.8 mmol/L (non-HDL-C ≤2.4 mmol/L, apo B ≤0.7 g/L)

2024-10-23

Signature: _____

Print Name: _____

Date: _____

License #: _____

⁸ Adult with type 2 diabetes
¹ CV Risk factors indicating ACEi or ARB: Hypertension; TC >5.2 mmol/L; HDL-C <0.9 mmol/L; Albuminuria; smoking
² CV Risk factors indicating GLP-1ra and/or SGLT-2i: Smoking (Tobacco use); Hypertension (Untreated SBP ≥140 mmHg or DBP ≥95 mmHg, or current antihypertensive therapy); Dyslipidemia (untreated LDL ≥3.4 mmol/L, OR HDL-C <1.0 mmol/L (men) <1.3 mmol/L (women), low-density lipoprotein ≥2.3 mmol/L, or current lipid lowering therapy); Central obesity
 Diabetes Canada will keep this tool updated and available at guidelines.diabetes.ca. Updated October 2024

Prescription for Cardiorenal Protection with diabetes

Prescriber's Name: _____

Address: _____

Tel: _____

Fax: _____

Patient's Name: _____

Address: _____

Tel: _____

STEP 1:	STEP 2: Choose Cardiovascular protection agent(s) from the following list			Dosing	
Is the person... <input type="checkbox"/> Age >40? <input type="checkbox"/> Age >30, and diabetes >15 years? <input type="checkbox"/> Warranted for statin therapy based on the Canadian Cardiovascular Society Lipid Guidelines? <input type="checkbox"/> MASLD (Metabolic-dysfunction Associated Liver Disease)? [§] <p style="text-align: right;">YES →</p>	Statin	STATIN			Dosing: see start and maximum doses listed for each statin. High-intensity statin therapy (lowers LDL-C by ≥50%) - Atorvastatin 40 - 80 mg - Rosuvastatin 20 - 40 mg Moderate-intensity statin therapy (lowers LDL-C by 30 - 49%) - Atorvastatin 10 - 20 mg - Rosuvastatin 5 - 10 mg - Simvastatin 20 - 40mg - Pravastatin 40 - 80 mg - Lovastatin 40 mg - Fluvastatin 80 mg
		<input type="checkbox"/> Atorvastatin (Lipitor®) <input type="checkbox"/> 10 mg (start 10 mg OD) <input type="checkbox"/> 20 mg <input type="checkbox"/> 40 mg <input type="checkbox"/> 80 mg (max 80 mg OD)	<input type="checkbox"/> Fluvastatin (Lescol®) <input type="checkbox"/> 20 mg (start 20 mg OD) <input type="checkbox"/> 40 mg <input type="checkbox"/> 80 mg (max 80 mg OD)	<input type="checkbox"/> Lovastatin (Mecavor®) <input type="checkbox"/> 20 mg (start 20 mg OD) <input type="checkbox"/> 40 mg (max 80 mg OD)	
		<input type="checkbox"/> Pravastatin (Pravachol®) <input type="checkbox"/> 10 mg (start 10 mg OD) <input type="checkbox"/> 20 mg <input type="checkbox"/> 40 mg <input type="checkbox"/> 80 mg (max 80 mg OD)	<input type="checkbox"/> Rosuvastatin (Crestor®) <input type="checkbox"/> 5 mg <input type="checkbox"/> 10 mg (start 10 mg OD) <input type="checkbox"/> 20 mg <input type="checkbox"/> 40 mg (max 40 mg OD)	<input type="checkbox"/> Simvastatin (Zocor®) <input type="checkbox"/> 10 mg (start 10 mg OD) <input type="checkbox"/> 20 mg <input type="checkbox"/> 40 mg (max 80 mg OD)	
Is the person... <input type="checkbox"/> Age >55 with ≥ 1 CV risk factor? [†] Does the person have... <input type="checkbox"/> Retinopathy <input type="checkbox"/> Neuropathy <input type="checkbox"/> Left Ventricular Hypertrophy <p style="text-align: right;">YES →</p>	Statin + ACEi or ARB	ACE INHIBITORS		ARB	Dosing: see start and maximum doses listed. Increase doses at 2 - 3 week intervals. *ACE-inhibitor or ARB (angiotensin receptor blocker) should be given at doses that have demonstrated vascular protection Educate on sick day prevention and management .
		<input type="checkbox"/> Perindopril (Aceaon®, Coversyl®) <input type="checkbox"/> 2 mg <input type="checkbox"/> 4 mg (start 4 mg OD) <input type="checkbox"/> 8 mg* (max 16 mg OD)	<input type="checkbox"/> Ramipril (Altace®) <input type="checkbox"/> 1.25 mg <input type="checkbox"/> 2.5 mg (start 2.5 mg OD) <input type="checkbox"/> 5 mg <input type="checkbox"/> 10 mg* (max 20 mg OD)	<input type="checkbox"/> Telmisartan (Micardis®) <input type="checkbox"/> 20 mg <input type="checkbox"/> 40 mg (start 40 mg OD) <input type="checkbox"/> 80 mg* (max 80 mg OD)	
Is the person... <input type="checkbox"/> Age >60 with ≥2 CV risk factors? [‡] <p style="text-align: right;">YES →</p>	Statin + ACEi or ARB + GLP-1ra and/or SGLT2i	GLP-1 RECEPTOR AGONIST (not approved by Health Canada for use in type 1 diabetes)			Dosing: See Renal Dosing Chart for doses in CKD. Dose should be uptitrated to a minimum dose that has demonstrated cardiorenal benefit(*) GLP-1ra dosing considerations: start at low doses and titrate up slowly to reduce gastrointestinal side effects. SGLT-2i dosing considerations: All SGLT-2i can be started at GFR >30 mL/min/1.73m ² and may be continued if GFR falls below 30 mL/min/1.73m ² . If risk of dehydration cannot be managed, provide education on sick day management
		<input type="checkbox"/> Dulaglutide (Trulicity®) <input type="checkbox"/> 0.75 mg s.c. once weekly <input type="checkbox"/> 1.5 mg* s.c. once weekly	<input type="checkbox"/> Liraglutide (Victoza®) <input type="checkbox"/> 0.6 mg s.c. OD <input type="checkbox"/> 1.2 mg s.c. OD <input type="checkbox"/> 1.8 mg* s.c. OD	<input type="checkbox"/> Semaglutide (Ozempic®) <input type="checkbox"/> 0.25 mg s.c. once weekly <input type="checkbox"/> 0.5 mg* s.c. once weekly <input type="checkbox"/> 1 mg* s.c. once weekly <input type="checkbox"/> 2 mg* s.c. once weekly	
Does the person have... <input type="checkbox"/> Heart Failure See HF guidelines for other warranted therapies <p style="text-align: right;">YES →</p>	Statin + ACEi or ARB + SGLT2i and/or GLP-1ra	SGLT2 INHIBITOR (not approved by Health Canada for use in type 1 diabetes)			SGLT-2i dosing considerations: All SGLT-2i can be started at GFR >30 mL/min/1.73m ² and may be continued if GFR falls below 30 mL/min/1.73m ² . If risk of dehydration cannot be managed, provide education on sick day management
		<input type="checkbox"/> Canagliflozin (Invokana®) <input type="checkbox"/> 100 mg* OD <input type="checkbox"/> 300 mg* OD	<input type="checkbox"/> Dapagliflozin (Forxiga®) <input type="checkbox"/> 5 mg OD <input type="checkbox"/> 10 mg* OD	<input type="checkbox"/> Empagliflozin (Jardiance®) <input type="checkbox"/> 10 mg* OD <input type="checkbox"/> 25 mg* OD	
Does the person have... <input type="checkbox"/> Kidney disease (ACR≥2.0 mg/mmol and/or eGFR<60mL/min/1.73m ²) <p style="text-align: right;">YES →</p>	Statin + ACEi or ARB + SGLT2i and/or GLP-1ra +/-finerenone	NONSTEROIDAL MINERALOCORTICOID RECEPTOR ANTAGONIST (nsMRA)			Finereone dosing considerations: See product monograph for initiation, continuation and dose adjustments based on serum potassium.
		<input type="checkbox"/> Finerenone (Kerendia®) [§] when CKD with albuminuria <input type="checkbox"/> 10 mg OD starting dose if eGFR ≥ 25 to < 60 mL/min/1.73m ² <input type="checkbox"/> 20 mg OD starting dose if eGFR ≥ 60 mL/min/1.73m ²			
Does the person have ASCVD? <input type="checkbox"/> Coronary artery disease <input type="checkbox"/> Peripheral arterial disease <input type="checkbox"/> Cerebrovascular/carotid disease <p style="text-align: right;">YES →</p>	Statin + ACEi or ARB + GLP-1ra and/or SGLT2i + ASA	ANTI-PLATELET (if CVD)			See CCS Lipid Guidelines for other warranted therapies. Dose adjustments if lipid targets not being met, e.g., LDL-C ≤2.0 mmol/L (non-HDL-C ≤ 2.6 mmol/L, apo B ≤ 0.8 g/L); or, with ASCVD, LDL-C ≤1.8 mmol/L (non-HDL-C ≤2.4 mmol/L, apo B ≤0.7 g/L)
		<input type="checkbox"/> ASA <input type="checkbox"/> 81 mg OD <input type="checkbox"/> 162 mg OD	<input type="checkbox"/> Clopidogrel (Plavix®) for those unable to tolerate ASA <input type="checkbox"/> 75 mg OD		

Signature: _____

Print Name: _____

Date: _____

License #: _____

§ Adult with type 2 diabetes

† CV Risk Factors indicating ACEi or ARB: Hypertension; TC >5.2 mmol/L; HDL-C <0.9 mmol/L; Albuminuria; smoking

‡ CV Risk Factors indicating GLP-1ra: and/or SGLT-2i; Smoking (Tobacco use); Hypertension (Untreated SBP≥140 mmHg or DBP≥95 mmHg, or current antihypertensive therapy); Dyslipidemia (Untreated LDL≥3.4 mmol/L OR HDL-C <1.0 mmol/L (men) <1.3 mmol/L (women) OR triglyceride ≥2.3 mmol/L, or current lipid-lowering therapy; Central obesity

Diabetes Canada will keep this tool updated and available at guidelines.diabetes.ca. Updated October 2024

Hypoglycemia: Identifying and Treating

For people using glyburide, gliclazide, repaglinide or insulin



Hypoglycemia resource for people with diabetes

Signs of hypoglycemia

Adrenergic (autonomic)

- Trembling
- Palpitations
- Sweating
- Anxiety
- Hunger
- Nausea
- Tingling

Neuroglycopenic

- Difficulty concentrating
- Confusion
- Weakness
- Drowsiness
- Vision changes
- Slurred speech
- Headache
- Dizziness

Classification of hypoglycemia

Level 1

- Glucose level below normal (often between 3.0 and 3.9 mmol/L)
- Associated with autonomic symptoms
- Without neuroglycopenic symptoms or changes to mental status

Level 2

- Glucose level below normal (often <3.0 mmol/L)
- Associated with neuroglycopenic symptoms
- Without significant impact on mental status
- With or without autonomic symptoms

Level 3

- Glucose level below normal (regardless of glucose reading)
- Associated with neuroglycopenic symptoms resulting in significantly altered mental/physical status
- Requires assistance to treat

Treatment*

Level 1 or 2 hypoglycemia:

- Ingest 15 g of carbohydrate, preferably as glucose or sucrose (i.e. tablets or solution). Glucose levels should be retested after 15 minutes and re-treated with another 15 g of carbohydrate if the glucose level remains <3.9 mmol/L

Examples of 15 g of carbohydrate:

- 4 x 4 g glucose tablets
- 15 mL (3 teaspoons) or 3 packets of table sugar dissolved in water
- 5 cubes of sugar
- 150 mL juice or regular soft drink
- 6 LifeSavers™
- 15 mL (1 tablespoon) honey

Level 3 hypoglycemia:

- Conscious: Treat with oral ingestion of 20 g of carbohydrate, preferably as glucose tablets or equivalent (if capable of swallowing) or 3 mg of glucagon intranasal or glucagon 1 mg SC/IM. Retreat with additional doses after 15 minutes if glucose level remains <3.9 mmol/L
- Unconscious: Treat with glucagon (as above) or 10-25 g (20-50 mL of D50W) of glucose IV. Retreat with additional doses after 15 minutes if glucose level remains <3.9 mmol/L

* After treatment of hypoglycemia, consume usual meal or snack that is due at that time of the day. If a meal is >1 hour away, consume a snack (including 15 g carbohydrate and a protein source)

2024-10-23

Hypoglycemia low blood sugar in adults

What are the signs?

Each person will have their own way of recognizing low blood sugar.

Some of the signs include:

- ↑ Awareness
- Sweating
 - Trembling
 - Palpitations
 - Anxiety
 - Hunger
 - Nausea
 - Headache
 - Tingling
 - Disturbed sleep
 - Weird dreams
 - Weakness/dizziness
 - Difficulty concentrating
 - Vision changes
 - Drowsiness
 - Difficulty speaking
 - Unconsciousness
- ↓ Awareness



How to take action

If able to swallow, EAT fast-acting sugar

- 15 g of glucose in the form of glucose tablets
- 1 tablespoon (15 mL) of honey
- 1 tablespoon (15 mL) sugar in water
- 2/3 cup (150 mL) of juice or regular soft drink
- 15 g fast-acting sugar (e.g. 6 LifeSavers® or 2 rolls Rocket Candy)

With more severe signs (affecting mental/physical ability):

- If able to swallow → EAT 20g fast-acting sugar
- If unable to swallow → GIVE 3 mg glucagon intranasal or 1 mg SC/IM

WAIT 15 minutes and CHECK

- If blood sugar is 3.9 mmol/L or ABOVE AND next meal is in the hour
- If blood sugar is 3.9 mmol/L or ABOVE AND next meal is LONGER than 1 hour away
- If blood sugar is BELOW 3.9 mmol/L REPEAT steps above

- Eat ONE of:
- Starch:** ex. 2 crackers OR 1 slice of bread
 - AND**
 - Protein:** ex. 1 piece of cheese OR 2 tablespoons of peanut butter

Are you Driving?
After treating a low, wait until your blood sugar is above 5 mmol/L to start driving. Your brain might need up to 40 minutes to recover before you can safely drive again.

Why does low blood sugar happen?

Have you:

- Eaten less than planned?
- Eaten later than normal?
- Taken more medication than planned?
- Been more active than planned?
- Drunk any alcohol within the past 24 hours?

Fear of lows is common and may cause excess anxiety, stress, reducing the ability to function and quality of life. If you are having lows, speak with your diabetes health-care team:

- Doctor • Nurse practitioner • Pharmacist
- Nurse • Dietitian

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02/24 112025

2024-10-23



Hypoglycemia low blood sugar in adults

What are the signs?

Each person will have their own way of recognizing low blood sugar.

Some of the signs include:



Severity

Sweating	Trembling	Palpitations	Anxiety
Hunger	Nausea	Headache	Tingling
Disturbed sleep	Weird dreams	Weakness/dizziness	Difficulty concentrating
Vision changes	Drowsiness	Difficulty speaking	Unconsciousness

Why does low blood sugar happen?

Have you:

- Eaten less than planned?
- Eaten later than normal?
- Taken more medication than planned?
- Been more active than planned?
- Drunk any alcohol within the past 24 hours?

Fear of lows is common and may cause excess anxiety, stress, reducing the ability to function and quality of life. If you are having lows, speak with your diabetes health-care team:

- Doctor • Nurse practitioner • Pharmacist
- Nurse • Dietitian

How to take action

If able to swallow, EAT fast-acting sugar



15 g of glucose in the form of glucose tablets



1 tablespoon (15 mL) of honey



1 tablespoon (15 mL) sugar in water



2/3 cup (150 mL) of juice or regular soft drink



15 g fast-acting sugar (e.g. 6 Life Savers® or 2 rolls Rocket Candy)

With more severe signs (affecting mental/physical ability):

- If able to swallow → EAT 20g fast-acting sugar
- If unable to swallow → GIVE 3 mg glucagon intranasal or 1 mg SC/IM



WAIT 15 minutes and **CHECK**



If blood sugar is 3.9 mmol/L or **ABOVE** **AND** next meal is **in the hour** ✓

If blood sugar is 3.9 mmol/L or **ABOVE** **AND** next meal is **LONGER than 1 hour away**

If blood sugar is **BELOW** 3.9 mmol/L **REPEAT steps above** ✗

Eat ONE of:

Starch:
ex. 7 crackers OR 1 slice of bread

AND

Protein:
ex. 1 piece of cheese OR 2 tablespoons of peanut butter



Are you Driving?


After treating a low, **Wait** until your blood sugar is above 5 mmol/L to start driving. Your brain might need up to 40 minutes to recover before you can safely drive again.

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DIABETES CANADA

Keeping people with diabetes safe when they are at risk of hypoglycemia

Reduce Driving Risk	<p>EDUCATE people at risk of hypoglycemia to drive safely with diabetes</p> <p>PREPARE Keep fast-acting sugar within reach and other snacks nearby</p> <p>BE AWARE of blood glucose (BG) before driving and every 4 hours during long drives. If BG is below 4 mmol/L, treat</p> <p>STOP driving and treat if any symptoms appear</p> <p>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</p> <p>If a person has impaired awareness of hypoglycemia, he/she must check their BG before driving and every 2 hours while driving, or monitor glucoses with a real-time continuous glucose sensor</p>	 <p>Drive Safe resource for people with diabetes</p>
Hypoglycemia Prevention Strategies	<p>Psychoeducational training</p> <ul style="list-style-type: none"> Structured diabetes education programs focused on recognizing and reducing frequency of hypoglycemia <p>Choice of pharmacotherapy</p> <ul style="list-style-type: none"> Avoid, reduce dose of, or discontinue pharmacotherapies associated with increased risk of hypoglycemia if appropriate Consider long-acting analogues (insulin glargine-100, glargine-300, detemir, or degludec) over NPH insulin Consider second-generation basal insulin analogues (insulin glargine-300 and degludec) over insulin glargine-100 and detemir to reduce the risk of hypoglycemia, including nocturnal hypoglycemia in type 1 and type 2 diabetes <p>Glucose monitoring</p> <ul style="list-style-type: none"> Use of continuous glucose monitoring (CGM) and increased frequency of capillary blood glucose (CBG) monitoring to identify episodes of hypoglycemia <p>Surgical (for type 1 diabetes)</p> <ul style="list-style-type: none"> Islet cell transplant Pancreas transplant 	

2024-10-23

Drive Safe with Diabetes

If you take insulin or pills that can drop your blood sugar below 4 mmol/L:

Prepare: Keep fast-acting sugar where you can reach it while driving. Keep other snacks nearby.

Be Aware of your blood sugar level before driving. Do not start driving if below 4 and treat*. For long drives, check your blood sugar every 4 hours.

Stop driving and treat* if you don't feel well.

After treating* a low, **Wait** until your blood sugar is above 5 to start driving. Your brain might need up to 40 minutes to recover after you have treated a low before you can safely drive again.

Tell your health-care provider if someone else had to help you with a low blood sugar.

Fast-acting sugar that I will keep in my car close to the driver's seat:

Snacks that I will keep nearby when I am driving:

*See the back for how to treat a low blood sugar.

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info@diabetes.ca



How to treat a low blood sugar

EAT fast-acting sugar

15 g of glucose in the form of glucose tablets	1 tablespoon (15 mL) of honey	1 tablespoon (15 mL) sugar in water
2/3 cup (150 mL) of juice or regular soft drink	15 g fast-acting sugar (e.g. 6 Life Savers® or 2 rolls Rocket Candy)	

WAIT 15 minutes and CHECK

If blood sugar is ABOVE 4.0mmol/L AND next meal is in the hour	If blood sugar is ABOVE 4.0mmol/L AND next meal is LONGER than 1 hour away	If blood sugar is BELOW 4.0mmol/L REPEAT steps above
--	---	---

Eat **ONE** of:

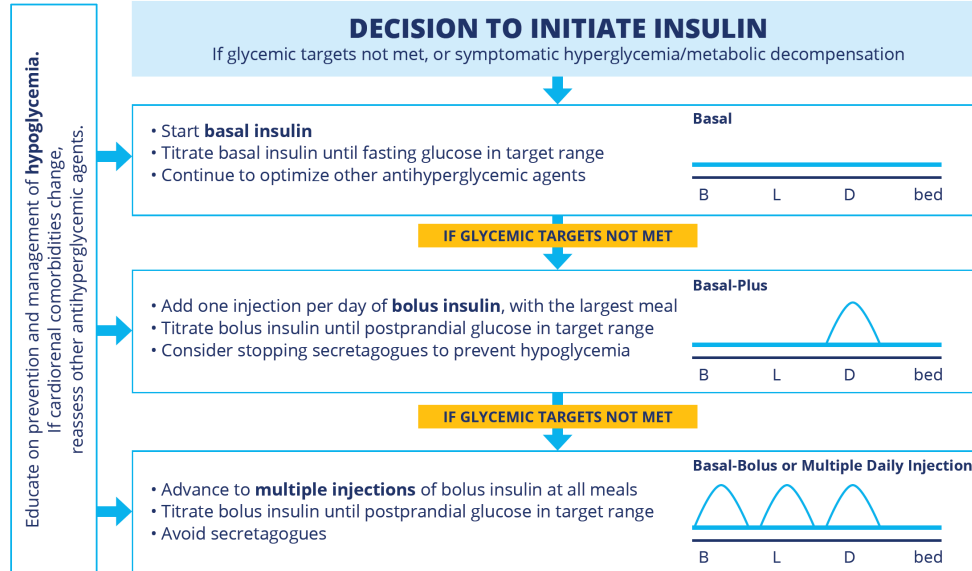
Starch: ex. 7 crackers OR 1 slice of bread

AND

Protein: ex. 1 piece of cheese OR 2 tablespoons of peanut butter

2024-10-23

Stepwise Approach to Insulin Regimens for People with Type 2 Diabetes



2024-10-23

Insulin Prescription

Choose insulin(s) from one of the columns and then complete the dosing and titration column.

Prescriber's Name: _____ Patient's Name: _____
 Address: _____ Address: _____
 Tel: _____ Fax: _____ Tel: _____

STEP 1: Choose Insulin Type				STEP 2: Dosing & Titration
BASAL Intermediate-acting (Cloudy)	<input type="checkbox"/> Humulin® N <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> KwikPen (prefilled)	<input type="checkbox"/> Novolin® ge NPH <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial		Starting dose: _____ units every _____
Long-acting analogues (Clear) <small>† Biosimilar of Lantus® insulin</small>	<input type="checkbox"/> Basaglar® <input type="checkbox"/> Cartridge <input type="checkbox"/> KwikPen (prefilled)	<input type="checkbox"/> Levemir® <input type="checkbox"/> Cartridge <input type="checkbox"/> FlexTouch® (prefilled)	<input type="checkbox"/> Lantus® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> SoloSTAR® (prefilled)	<input type="checkbox"/> Semglee® <input type="checkbox"/> prefilled pen
Ultra Long-acting analogues (Clear)		<input type="checkbox"/> Tresiba® <input type="checkbox"/> FlexTouch® 100 U/mL (prefilled) <input type="checkbox"/> FlexTouch® 200 U/mL (prefilled)	<input type="checkbox"/> Toujeo® <input type="checkbox"/> SoloSTAR® (prefilled) <input type="checkbox"/> DoubleSTAR® (prefilled)	Increase dose by _____ units every _____ until fasting blood glucose is at the person's individual target range of _____ mmol/L.
Once weekly basal insulin analogues (Clear)		<input type="checkbox"/> Awiqli® <input type="checkbox"/> FlexTouch® 700 U/mL (prefilled)		
PRANDIAL (BOLUS) Rapid-acting analogues (Clear) <small>† Biosimilar of Humalog® insulin</small> <small>† Biosimilar of NovoRapid® insulin</small>	<input type="checkbox"/> Humalog® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> KwikPen® (prefilled) <input type="checkbox"/> Junior® KwikPen® <input type="checkbox"/> Humalog® 200 units/mL <input type="checkbox"/> KwikPen® (prefilled)	<input type="checkbox"/> Fiasp® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> FlexTouch® (prefilled) <input type="checkbox"/> NovoRapid® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> FlexTouch® (prefilled)	<input type="checkbox"/> Apidra® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> SoloSTAR® (prefilled) <input type="checkbox"/> Admelog® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> SoloSTAR® (prefilled) <input type="checkbox"/> Trurapi® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> SoloSTAR® (prefilled)	<input type="checkbox"/> Kirsty® <input type="checkbox"/> prefilled pen
Short-acting (Clear) Give 30 minutes before meal.	<input type="checkbox"/> Humulin® R <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> KwikPen®	<input type="checkbox"/> Novolin® ge Toronto <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial		Starting dose: _____ units ac breakfast _____ units ac lunch _____ units ac supper
PREMIXED Premixed analogues (Cloudy)	<input type="checkbox"/> Humalog® Mix25® <input type="checkbox"/> Cartridge <input type="checkbox"/> KwikPen® (prefilled) <input type="checkbox"/> Humalog® Mix50® <input type="checkbox"/> Cartridge <input type="checkbox"/> KwikPen® (prefilled)	<input type="checkbox"/> NovoMix® 30 <input type="checkbox"/> Cartridge		Starting doses: _____ units ac breakfast _____ units ac supper Increase breakfast dose by _____ units every day until pre-supper blood glucose has reached the target of _____ mmol/L. Increase pre-supper dose by _____ units every day until fasting blood glucose has reached the target of _____ mmol/L. Beware of hypoglycemia post-breakfast or post-supper. Stop increasing dose if hypoglycemia occurs.
Premixed regular (Cloudy) Give 30 minutes before meal.	<input type="checkbox"/> Humulin® 30/70 <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial	<input type="checkbox"/> Novolin® ge 30/70 <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial		
PEN DEVICE Required if insulin cartridges selected.	<input type="checkbox"/> HumaPen® Savvio®	<input type="checkbox"/> NovoPen® 4 <input type="checkbox"/> NovoPen Echo® <input type="checkbox"/> NovoPen® 5	<input type="checkbox"/> AIISTAR® Pro <input type="checkbox"/> JuniorSTAR®	
OTHER SUPPLIES	<input type="checkbox"/> Pen needles (if using a pen): <input type="checkbox"/> 4mm <input type="checkbox"/> 5mm <input type="checkbox"/> 6mm OR <input type="checkbox"/> At discretion of pharmacist <input type="checkbox"/> Glucose test strips and Lancets <input type="checkbox"/> Glucose sensors <input type="checkbox"/> Insulin Syringe (if using vials) <input type="checkbox"/> Ketone Strips <input type="checkbox"/> Glucagon <input type="checkbox"/> Nasal Glucagon			
QUANTITY and REPEATS	Insulin Mitte: _____ boxes Repeats x _____	Supplies Mitte: _____ boxes Repeats x _____		

2024-10-23

Signature: _____ Print Name: _____ Date: _____ License #: _____

This tool was developed by the Ontario College of Family Physicians and the New Brunswick Diabetes Task Group and was re-produced with permission by Diabetes Canada. Diabetes Canada will keep this tool updated and available at guidelines.diabetes.ca
 Updated October 2024 - 416584

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Insulin Prescription

Choose insulin(s) from one of the columns and then complete the dosing and titration column.

Prescriber's Name: _____

Address: _____

Tel: _____

Fax: _____

Patient's Name: _____

Address: _____

Tel: _____

STEP 1: Choose Insulin Type				STEP 2: Dosing & Titration	
BASAL Intermediate-acting (Cloudy)	<input type="checkbox"/> Humulin® N <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> KwikPen (prefilled)	<input type="checkbox"/> Novolin® ge NPH <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial			Starting dose: _____ units every _____ Increase dose by _____ units every _____ until fasting blood glucose is at the person's individual target range of _____ mmol/L.
Long-acting analogues (Clear) <small>§ Biosimilar of Lantus® insulin</small>	<input type="checkbox"/> Basaglar®§ <input type="checkbox"/> Cartridge <input type="checkbox"/> KwikPen (prefilled)	<input type="checkbox"/> Levemir® <input type="checkbox"/> Cartridge <input type="checkbox"/> FlexTouch® (prefilled)	<input type="checkbox"/> Lantus® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> SoloSTAR® (prefilled)	<input type="checkbox"/> Semglee®§ <input type="checkbox"/> prefilled pen	
Ultra Long-acting analogues (Clear)		<input type="checkbox"/> Tresiba® <input type="checkbox"/> FlexTouch® 100 U/mL (prefilled) <input type="checkbox"/> FlexTouch® 200 U/mL (prefilled)	<input type="checkbox"/> Toujeo® <input type="checkbox"/> SoloSTAR® (prefilled) <input type="checkbox"/> DoubleSTAR® (prefilled)		
Once weekly basal insulin analogues (Clear)		<input type="checkbox"/> Awicli® <input type="checkbox"/> FlexTouch® 700 U/mL (prefilled)			Starting dose: _____ units ac breakfast _____ units ac lunch _____ units ac supper
PRANDIAL (BOLUS) Rapid-acting analogues (Clear) <small>† Biosimilar of Humalog® insulin ‡ Biosimilar of NovoRapid® insulin</small>	<input type="checkbox"/> Humalog® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> KwikPen® (prefilled) <input type="checkbox"/> Junior KwikPen® <input type="checkbox"/> Humalog® 200 units/mL <input type="checkbox"/> KwikPen® (prefilled)	<input type="checkbox"/> Fiasp® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> FlexTouch® (prefilled) <input type="checkbox"/> NovoRapid® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> FlexTouch® (prefilled)	<input type="checkbox"/> Apidra® <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> SoloSTAR® (prefilled) <input type="checkbox"/> Admelog® † <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> SoloSTAR® (prefilled) <input type="checkbox"/> Trurapi® ‡ <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> SoloSTAR® (prefilled)	<input type="checkbox"/> Kirsty® † <input type="checkbox"/> prefilled pen	
Short-acting (Clear) Give 30 minutes before meal.	<input type="checkbox"/> Humulin® R <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial <input type="checkbox"/> KwikPen®	<input type="checkbox"/> Novolin® ge Toronto <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial			
PREMIXED Premixed analogues (Cloudy)	<input type="checkbox"/> Humalog® Mix25® <input type="checkbox"/> Cartridge <input type="checkbox"/> KwikPen® (prefilled) <input type="checkbox"/> Humalog® Mix50® <input type="checkbox"/> Cartridge <input type="checkbox"/> KwikPen® (prefilled)	<input type="checkbox"/> NovoMix® 30 <input type="checkbox"/> Cartridge			
Premixed regular (Cloudy) Give 30 minutes before meal.	<input type="checkbox"/> Humulin® 30/70 <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial	<input type="checkbox"/> Novolin® ge 30/70 <input type="checkbox"/> Cartridge <input type="checkbox"/> Vial			
PEN DEVICE Required if insulin cartridges selected.	<input type="checkbox"/> HumaPen® Savvio®	<input type="checkbox"/> NovoPen® 4 <input type="checkbox"/> NovoPen Echo® <input type="checkbox"/> NovoPen® 5	<input type="checkbox"/> AllSTAR® Pro <input type="checkbox"/> JuniorSTAR®		
OTHER SUPPLIES	<input type="checkbox"/> Pen needles (if using a pen): <input type="checkbox"/> 4mm <input type="checkbox"/> 5mm <input type="checkbox"/> 6mm OR <input type="checkbox"/> At discretion of pharmacist <input type="checkbox"/> Glucose test strips and Lancets <input type="checkbox"/> Glucose sensors <input type="checkbox"/> Insulin Syringe (if using vials) <input type="checkbox"/> Ketone Strips <input type="checkbox"/> Glucagon <input type="checkbox"/> Nasal Glucagon				
QUANTITY and REPEATS	Insulin Mitte: _____ boxes Repeats x _____		Supplies Mitte: _____ boxes Repeats x _____		

Signature: _____

Print Name: _____

Date: _____

License #: _____

Insulin Initiation and Titration Suggestions for Type 2 Diabetes

People starting insulin should be counseled about the prevention, recognition and treatment of hypoglycemia.

The following are suggestions for insulin initiation and titration. Clinical judgment must always be used as the suggestions may not apply to every individual.

Basal Insulin (only) as an add-on to Antihyperglycemic Agents

(Awiqli®, Basaglar®, Lantus®, Levemir®, Semglee®, Toujeo®, Tresiba®, Humulin® N, Novolin® ge NPH)

- Target fasting blood glucose (BG) of 4-7 mmol/L. The fasting BG target can be tightened to 4-5.5 mmol/L if not meeting overall glycemic goals.
- Most individuals with type 2 diabetes will need 40-50 units a day to meet and maintain glycemic targets but there is no maximum dose.
- Start at a low dose of 10 units at bedtime (may start at lower dose [0.1 -0.2 units/kg] for lean individuals [<50 kg]).
- If using Tresiba®, the dose can be increased by 2-4 units every 3 to 7 days until fasting BG is in target range.
- If using other once daily basal insulin, the dose can be increased by 1 unit every day until fasting BG is in target range.
- If using once weekly insulin, see product specific dose adjustments to treat to glycemic targets
- If fasting hypoglycemia occurs, the dose of basal insulin should be assessed.
- In general, optimize healthy behaviour interventions and antihyperglycemic agents that are not affiliated with hypoglycemia before adding/ increasing basal insulin.
- Awiqli®, Toujeo® or Tresiba® can be given at any time of the day, e.g., at bedtime or in the morning.

Dosing and Titration Example

Starting dose 10 units at bedtime.

Increase dose by 1 unit every 1 night until fasting blood glucose has reached the target of 4-7 mmol/L.

Basal + Bolus Insulins

- Bolus (prandial) insulin should be added when glycemic metrics are not in target despite optimized health behaviour interventions, non-insulin antihyperglycemic agents and basal insulin. The regimens below incorporate bolus (prandial) insulin. There is the option of only adding bolus insulin to the meal with the highest postprandial BG as a starting point.
- Typically, insulin secretagogues are stopped when bolus (prandial) insulin is added.
- For current basal insulin users, maintain the basal dose and add bolus insulin with each meal at a dose equivalent to 10% of the basal dose. For example, if the person is on 50 units of basal insulin, add 5 units of bolus insulin with each meal.
- For new insulin users starting a full Basal + Bolus regimen, calculate Total Daily Insulin dose (TDI) as 0.3 to 0.5 units/kg, then distribute as follows:
 - 40% of TDI dose as basal insulin (Basaglar®, Lantus®, Levemir®, Semglee®, Humulin® N, Novolin®ge NPH) at bedtime. If using Toujeo® or Tresiba®, may give morning or bedtime.
 - 20% of TDI dose as prandial (bolus) insulin prior to each meal.
 - Rapid-acting insulin analogues (Admelog®, Apidra®, Fiasp®, Humalog®, Kirsty®, NovoRapid®, Trurapi™) should be given 0-10 minutes before eating.
 - Short-acting insulin (Humulin® R, Novolin® ge Toronto) should be given 30 minutes before eating.
- An alternative distribution is 50% basal insulin (at bedtime) and 50% bolus insulin (distributed among the meals of the day).
- Adjust the dose of the basal insulin until the target fasting BG level (usually 4-7 mmol/L) is met.
- Adjust the dose of the bolus (prandial) insulin until postprandial BG levels (usually 5-10 mmol/L) or pre-prandial BG levels for the subsequent meal (usually 4-7 mmol/L) are met.

Dosing Example (100kg person)

Total daily insulin = 0.5 units/kg:
0.5 x 100kg (TDI)
• TDI = 50 units

Basal insulin = 40% of TDI:
40% x 50 units
• Basal bedtime = 20 units

Bolus insulin = 60% of TDI:
60% x 50 units
• Bolus = 30 units
= 10 units with each meal

Premixed Insulin Before Breakfast and Before Dinner

(Humalog® Mix25®, Humalog® Mix50®, NovoMix® 30, Humulin® 30/70, Novolin®ge 30/70)

- Target fasting and pre-supper BG levels of 4-7 mmol/L.
- Most individuals with type 2 diabetes will need 40-50 units twice a day to meet glycemic targets but there is no maximum dose.
- Start at a low dose of 5 to 10 units twice daily (before breakfast and before supper).
- Support the individual to gently self-titrate by increasing the breakfast dose by 1 unit every day until the pre-supper BG is at target.
- Support the individual to gently self-titrate by increasing the supper dose by 1 unit every day until the fasting BG target is at target.
- Beware of hypoglycemia post-breakfast or post-supper. Stop increasing the causative dose, e.g., pre-breakfast versus pre-supper, if this occurs.
- Premixed analogue insulins (Humalog® Mix25®, Humalog® Mix50®, NovoMix® 30) should be given 0 to 10 minutes before eating.
- Premixed regular insulins (Humulin® 30/70, Novolin® ge 30/70) should be given 30 minutes before eating.
- Continue Metformin and consider stopping secretagogue.

Dosing and Titration Example

10 units ac breakfast , 10 units ac supper.

Increase breakfast dose by 1 unit every 1 day until pre-supper blood glucose has reached the target of 4-7 mmol/L (usual target).

Increase supper dose by 1 unit every 1 day until fasting blood glucose has reached the target of 4-7 mmol/L (usual target).




Selection of Pen Needle

- Forum for Injection Technique (FIT) Canada recommends that 4, 5, and 6mm needles are suitable for all people with diabetes regardless of BMI. In addition, there is no clinical reason for recommending needles longer than 8mm. Initial insulin therapy should start with the shorter needle length (Berard L, et al. FIT Forum for Injection Technique Canada. Recommendations for Best Practice in Injection Technique. 4th edition 2020).

Insulin pen start checklist

What is this form for? These are things to consider when people use insulin to manage their diabetes.

How to use this form. Complete this list, based on the timing best for you, with a member of your diabetes team (pharmacist, nurse, dietitian, etc.). Keep one copy for yourself and have a copy faxed/ scanned to your primary care provider.




Patient Name:		
Topic	Instruction date and HCP initials	Comments
Cognitive Assessment		
Insulin delivery		
• loading, if cartridge + pen (i.e., not prefilled pen)		
• priming		
• dialing up the dose		
• injection of insulin – site rotation, injection force		
Insulin dose and storage/expiry		
• type/action time (i.e., basal / bolus / premixed)		
• frequency/timing, e.g., once daily in the morning ~7am		
• storage/expiry		
Return demonstration		
Glucose checks		
• recommend a monitoring schedule		
• adjusting the insulin dose based on glucose data		
Hypoglycemia		
• What? – signs/symptoms		
• Why? – causes/prevention		
• How? – treatment		
• diabetes identification		
Safe Driving (if applicable)		
Sharps disposal		
Instructions for other antihyperglycemic meds		
Follow-up		
• review blood glucose monitoring data, e.g., CGM metrics, and daily action taken as a result of glucose monitoring data		
• when person is cognitively capable: capture of the remaining amount of insulin at the end of an insulin pen, i.e. injecting two part doses: 1st partial dose finishes the insulin in the insulin pen; 2nd partial dose is the remaining insulin dose from a new insulin pen		
• monitor A1C		

2024-10-23

Insulin pen start checklist

What is this form for? These are things to consider when people use insulin to manage their diabetes.

How to use this form. Complete this list, based on the timing best for you, with a member of your diabetes team (pharmacist, nurse, dietitian, etc.). Keep one copy for yourself and have a copy faxed/ scanned to your primary care provider.

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• type/action time (i.e., basal / bolus / premixed)		
• frequency/timing, e.g., once daily in the morning ~7am		
• storage/expiry		
Return demonstration		
Glucose checks		
• recommend a monitoring schedule		
• adjusting the insulin dose based on glucose data		
Hypoglycemia		
• What? – signs/symptoms		
• Why? – causes/prevention		
• How? – treatment		
• diabetes identification		
Safe Driving (if applicable)		
Sharps disposal		
Instructions for other antihyperglycemic meds		
Follow-up		
• review blood glucose monitoring data, e.g., CGM metrics, and daily action taken as a result of glucose monitoring data		
• when person is cognitively capable: capture of the remaining amount of insulin at the end of an insulin pen, i.e. injecting two part doses: 1st partial dose finishes the insulin in the insulin pen; 2nd partial dose is the remaining insulin dose from a new insulin pen		
• monitor A1C		

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2024-10-23

Keeping people 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, nifedipine 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

2024-10-23

Keeping people 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

Stay Safe When You Have Diabetes and Are Sick or at Risk of Dehydration

You are at risk of dehydration if you have any of the following:

- Vomiting
- Diarrhea
- Fever
- Excessive exposure to heat and/or humidity without drinking enough

DRINK plenty of fluids, with minimal sugar (unless you have been told to limit fluids)

- Consider electrolyte replacement solutions (such as Gastrolyte®, Hydralyte®, Pedialyte®). Clear soups or broths, water, diet soda (e.g. diet ginger-ale), watered down apple juice
- Limit caffeine (from coffee, tea and soda drinks) which makes dehydration worse

PREVENT low blood sugar (hypoglycemia).
If you cannot eat your usual foods, try any of the following foods, each containing about 15g of carbohydrates.

- 1 cup milk*
- ½ cup juice
- ½ cup applesauce
- ½ cup regular Jell-O
- ½ cup flavoured yogurt*
- ½ cup ice cream* or sherbet
- ¾ cup regular soft drink (avoid caffeinated drinks)
- ¼ cup pudding or ½ cup sugar-free pudding
- 1 twin popsicle

* Consider avoiding these foods if vomiting or diarrhea

IF YOU ARE USING INSULIN, you need to check your blood sugar more often and you might need to adjust the amount of insulin you inject

IF YOU ARE EATING LESS THAN NORMAL, and the symptoms last more than 24 hours, you should TEMPORARILY STOP:

Certain Diabetes Pills

- Secretagogues: e.g. Gliclazide (Diamicon®), Glyburide (Diabeta®), Repaglinide (GlucoNorm®)

If the symptoms last more than 24 hours and you continue to be dehydrated, or at risk of dehydration, you should also TEMPORARILY STOP:

Certain Blood Pressure / Heart Medications

- ACE inhibitors: e.g. Enalapril (Vasotec™), Fosinopril (Monopril™), Lisinopril (Prinivil®/Zestrin®), Perindopril (Coversyl®), Quinapril (Accupril™), Ramipril (Altace®), Trandolapril (Mavik®)
- ARBs: e.g. Candesartan (Atacand®), Eprosartan (Teveten®), Irbesartan (Avapro®), Losartan (Cozaar®), Olmesartan (Olmetec™), Telmisartan (Micardis®), Valsartan (Diovan®)

All Water Pills

- e.g. Chlorothalidone (Hygroton), Furosemide (Lasix®), Hydrochlorothiazide, Indapamide (Lozide®), Metolazone (Zaroxolin®), Spironolactone (Aldactone®)

Certain Diabetes Pills

- Metformin (GlucoPhage® or Glumetza®)
- SGLT2 Inhibitors: e.g. Canagliflozin (Invokana®), Dapagliflozin (Forxiga®), Empagliflozin (Jardiance™)

Anti-inflammatory Pain Medications

- e.g. Ibuprofen (Advil®/Motrin®), Celecoxib (Celebrex®), Diclofenac (Voltaren®), Ketorolac (Toradol®), Naproxen (Aleve®/Naprosyn®)

Note: The list above does not include the names of medications that come in combination (2 medications in one tablet).

Ask your pharmacist to tell you:

The medications I need to TEMPORARILY STOP are:

When I am eating less than normal: _____

When I am dehydrated: _____

This personalized list last reviewed (date): _____

Note: RESTART these medications when you are eating and drinking normally.

Call your health-care team (Pharmacist, Doctor, Nurse Practitioner, Nurse, Dietitian) and/or go the Emergency Department

- If you cannot drink enough fluids
- If you don't know which medications to stop
- If you don't know how to adjust your insulin
- If you have been told to check your ketones and they are moderate to high
- If you have any of the following that are not getting better: vomiting, diarrhea, stomach pain, frequent urination, extreme thirst, weakness, difficulty breathing or fever

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2024-10-23

Keeping people 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
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- **Screen for complications:**
 - Eye appointment, serum creatinine, urine ACR, blood pressure
- Aim for **healthy BMI**
- Ensure appropriate **vaccinations** have occurred
- **Refer** to diabetes clinic

ABCDEs of diabetes care

	GUIDELINE TARGET (or personalized goal)
A A1C with other (CGM*, BG*) glycemic targets <small>*when indicated/accessible</small>	A1C $\leq 7.0\%$ (or $\leq 6.5\%$ to \downarrow risk of CKD and retinopathy) If on insulin or insulin secretagogue, assess for hypoglycemia and ensure driving safety A1C 6.0 - $< 6.5\%$ for selected adults with type 2 diabetes with potential remission to prediabetes A1C < 6.0 for selected adults with type 2 diabetes with potential remission to normoglycemia
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); Alternative: non-HDL-C ≤ 2.6 mmol/L, apo B ≤ 0.8 g/L If ASCVD, LDL ≤ 1.8 mmol/L. Alternative: non-HDL-C ≤ 2.4 mmol/L, apo B ≤ 0.7 g/L
D Drugs for CV and/or Cardiorenal protection	<ul style="list-style-type: none"> • GLP1-RA + SGLT2i with demonstrated cardiorenal benefits if type 2 with ASCVD, CKD or HF, OR Age > 60 with ≥ 2 CV risk factors • ACEi/ARB if CVD, age ≥ 55 with risk factors, OR diabetes complications • Statin if age ≥ 40, age ≥ 30 and diabetes > 15 years OR diabetes complications • ASA if CVD • +/- finerenone if T2D + CKD with albuminuria
E Exercise goals and healthy eating	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 - every 1-2 years • Immunizations: ensure up-to-date as per NACI recommendations
S Smoking cessation	If smoker: Ask permission to give advice, arrange therapy and provide support
S Self-management , stress, sleep, other barriers	<ul style="list-style-type: none"> • Set personalized goals (see "individualized goal setting" panel) • Assess for stress, sleep, mental health and financial or other concerns that might be barriers to goals

2024-10-23



Introductory Resistance Program

Begin with 6-8 exercises. As you feel comfortable, add 1-2 exercises a week (up to 12 exercises).

<p>1 Hips & Thighs</p> <p>Start: Sit at the front of the chair, chest up, and feet hip width apart. Slowly lift out of the chair with your knees directly over your toes. Keep your back straight and arms out. Finish: Hold the top position with knees bent. Slowly bend knees to lower yourself to the chair. Don't drop to the chair.</p>	<p>2 Chest</p> <p>Start: Place the band around your upper back. Grab the ends of the band with elbows bent and palms facing down or inward. Finish: Press out, extending your elbows forward to shoulder level. Slowly return to starting position.</p>	<p>3 Upper Back</p> <p>Start: Grasp the band with both hands in front of your chest with the elbows slightly bent and shoulders down. Finish: Keep elbows slightly bent and pull band outward until the band reaches across your middle chest. Hold the end position briefly, squeezing the shoulder blades together. Slowly return to starting position.</p>	<p>4 Middle Back</p> <p>Start: Wrap the middle of the band around an extended foot. Grasp both ends of the band at the outside of your knees with your outside hand. Finish: Pull band backwards and slightly up until your outside hand is beside your ribcage. Pause. Slowly lower to starting position.</p>
<p>5 Shoulders</p> <p>Start: One foot and hand anchor one end of the band. The other hand is beside the shoulder grasping the band, hand level with the chin, and arm straight up from the floor. Finish: Extend the arm overhead until directly over the shoulder. Try not to lean to one side. Pause. Slowly lower to starting position.</p>	<p>6 Shoulders</p> <p>Start: Anchor as per #5 with slightly shorter band. Grasp the band at position just outside the knee. Can have palm down or palm forward (passer) on the shoulders. Finish: Lift arm to side with elbow slightly bent. Lift to shoulder height or slightly below shoulder height if you have shoulder problems. Pause. Slowly lower to starting position.</p>	<p>7 Upper Arm - Front</p> <p>Start: Keep same anchor position as #6, except slightly shorter band length. Grasp band with palm facing up. Finish: Curl hand to shoulder keeping your elbow at your side at the lower ribs. Pause. Slowly lower to starting position.</p>	<p>8 Upper Arm - Back</p> <p>Start: Seated at the front edge of the chair and chest up. Place the band around your knees, anchoring the band with one hand on the opposite thigh and holding the other end of the band down at your side with your elbow bent. Finish: Extend your elbow until your arm is straight down by your side. Pause. Slowly return to starting position.</p>
<p>9 Legs - Front</p> <p>Start: Tie the band in a knot and wrap around your feet, or tie the band around one leg of the chair with your foot through the loop. Finish: Extend one leg out, keeping your knee in the same position. Keep your posture. Pause. Slowly return to starting position.</p>	<p>10 Legs - Back</p> <p>Start: Stand behind the chair holding the back for support. Wrap the feet band around your ankles, or tie the band around a leg of the chair with your foot through the loop. Finish: Curl one ankle up. Keep the knee in the same position and your back stable. Pause. Slowly return to starting position.</p>	<p>11 Lower Back</p> <p>Start: Stand behind the chair holding the back for support, with knees slightly bent, and leaning forward with back straight. You can wrap a band around your ankles, or do the exercise without a band. Finish: Extend one leg out so that it is in line with your body. Don't over-extend the leg or arch in the low back. Pause. Slowly return to starting position.</p>	<p>12 Abdominals</p> <p>Start: Seated comfortably in the chair, chest up, and both knees bent with the feet on the ground in front of you. Finish: Lift one knee so that it is higher than the opposite knee, or slightly rock back with both feet on the ground. Tighten your abdominals. Keep your chest up. Pause. Slowly return to starting position.</p>

2024-10-23



Guidelines for Progression in Resistance Training

Follow the plan identified to gradually increase repetitions, sets, and resistance to meet Diabetes Canada's recommendation of resistance activity 2-3 times a week.

Initial Resistance Plan Progression

Program Stage	Week	Frequency (days/week)	Intensity		# of sets x repetitions
			Exertion Level		
Improvement	1	2	Light		1 x 8
	2	2	Light		1 x 10
	3	2	Moderate		1 x 12
	4	2	Moderate		2 x 8
	5 - 7	2	Moderate		2 x 10
Maintenance	8 - 10	2	Moderate		2 x 12
	11 - 13	3	Moderate		2 x 8
	14 - 16	3	Somewhat Strong		2 x 10
Maintenance	17 - 20	3	Somewhat Strong		2 x 12
	21 - 24	3	Somewhat Strong		2 x 15
Maintenance	25 +	2 - 3	Moderate - Strong		2 x 15 or 3 x 8

Start at the improvement stage if you are somewhat active and have no medical limitations.

Beginning Program: Resistance Band Training

- Involves mostly seated exercises for those with mobility difficulties.
- Requires a resistance band available at most stores .
- A good starting program for those who have not done resistance exercise.
- A good option for indoor exercise when it is raining or snowing!

Guidelines for Resistance Training

Important Safety Considerations and Tips:

It is recommended you see a diabetes care provider or a qualified exercise professional, or refer to the resistance training video, to learn how to do the exercises provided in this handout.

Only Do the Exercises You Are Able To Do

- Make sure that you do not do any exercises that hurt (for example, sore shoulder or sore knee – see a physician or physiotherapist if you have any questions . Remember to check your feet daily.
- If you have confirmed eye or kidney disease, discuss resistance exercises first with your physician or diabetes care provider.

Maintain Stable and Proper Posture for each Exercise

- Keep your chest out.
- Avoid rounding the shoulders or twisting your back.

Keep Each Movement Slow and Controlled

- 3 seconds up; 3 seconds down

Do Not Hold Your Breath

- Exhale with effort.
- Release your breath with each repetition.

Keep to a Comfortable Range of Motion

- Use a complete range that is comfortable for you.

Use an Appropriate Resistance

- Pick a band that makes it moderately hard to do the exercise.

Increasing the Resistance Used

- Change the length of the resistance band
 - Shorter band = harder
 - Longer band = easier

Where to start

- Begin at the initial stage if you are inactive and want to start easy with resistance exercise.
- Begin at the improvement stage if you are somewhat active and have no medical limitations.

Resistance Training and Diabetes

Keeping your muscles active and healthy through regular resistance training will greatly improve your management of diabetes. Diabetes Canada recommends resistance activities 2-3 times a week.

Benefits of Resistance Training

Resistance exercise uses more muscles than just walking. It uses upper body muscles that are rarely used in modern society today.

Resistance training also maintains or increases lean muscle. This helps to burn calories at rest throughout the day. This is important for weight control and diabetes management, especially as we age.

REMEMBER: You don't have to go to a gym to get the benefits of resistance training. All you need are simple forms of resistance such as:

- Exercise bands.
- Your own body weight.
- Light dumbbells or hand weights.
- Other items you may find around the house such as milk jugs filled with water.

The resistance program shown in this handout works all muscles in the body, using a resistance band, to better manage your diabetes and improve your health.

If you are unsure about how to do the exercises in this handout, seek the help of an exercise resource, diabetes care provider or qualified exercise professional to help you get started and keep you going.

Introductory Resistance Program

3



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DIABETES CANADA

Begin with 6-8 exercises. As you feel comfortable, add 1-2 exercises a week (up to 12 exercises).

Hips & Thighs

1



Start: Sit at the front of the chair, chest up, and feet hip width apart. Slowly lift out of the chair with your knees directly over your toes. Keep your back straight and arms out.
Finish: Hold the top position with knees bent. Slowly bend knees to lower yourself to the chair. Don't drop to the chair.

Chest

2



Start: Place the band around your upper back. Grab the ends of the band with elbows bent and palms facing down or inward.
Finish: Press out, extending your elbows forward to shoulder level. Slowly return to starting position.

Upper Back

3



Start: Grasp the band with both hands in front of your chest with the elbows slightly bent and shoulders down.
Finish: Keep elbows slightly bent and pull band outward until the band reaches across your middle chest. Hold the end position briefly, squeezing the shoulder blades together. Slowly return to starting position.

Middle Back

4



Start: Wrap the middle of the band around an extended foot. Grasp both ends of the band at the outside of your knee with your outside hand.
Finish: Pull band backwards and slightly up until your outside hand is beside your ribcage. Pause. Slowly lower to starting position.

Shoulders

5



Start: One foot and hand anchor one end of the band. The other hand is beside the shoulder grasping the band, hand level with the chin, and arm straight up from the floor.
Finish: Extend the arm overhead until directly over the shoulder. Try not to lean to one side. Pause. Slowly lower to starting position.

Shoulders

6



Start: Anchor as per #5 with slightly shorter band. Grasp the band at position just outside the knee. Can have palm down or palm forward (easier on the shoulders).
Finish: Lift arm to side with elbow slightly bent. Lift to shoulder height or slightly below shoulder height if you have shoulder problems. Pause. Slowly lower to starting position.

Upper Arm - Front

7



Start: Keep same anchor position as #6, except slightly shorter band length. Grasp band with palm facing up.
Finish: Curl hand to shoulder keeping your elbow at your side at the lower ribs. Pause. Slowly lower to starting position.

Upper Arm - Back

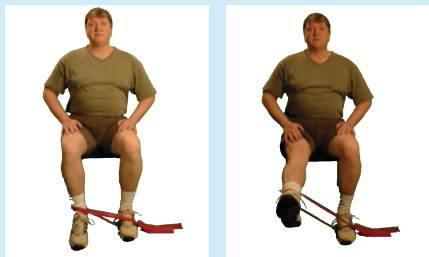
8



Start: Seated at the front edge of the chair and chest up. Place the band around your knee, anchoring the band with one hand on the opposite thigh and holding the other end of the band down at your side with your elbow bent.
Finish: Extend your elbow until your arm is straight down by your side. Pause. Slowly return to starting position.

Legs - Front

9



Start: Tie the band in a knot and wrap around your feet, or tie the band around one leg of the chair with your foot through the loop.
Finish: Extend one leg out, keeping your knee in the same position. Keep your posture. Pause. Slowly return to starting position.

Legs - Back

10



Start: Stand behind the chair holding the back for support. Wrap the tied band around your ankles, or tie the band around a leg of the chair with your foot through the loop.
Finish: Curl one ankle up. Keep the knee in the same position and your back stable. Pause. Slowly return to starting position.

Lower Back

11



Start: Stand behind the chair holding the back for support, with knees slightly bent, and leaning forward with back straight. You can wrap a band around your ankles, or do the exercise without a band.
Finish: Extend one leg out so that it is in line with your body. Don't over-extend the leg or arch in the low back. Pause. Slowly return to starting position.

Abdominals

12



Start: Seated comfortably in the chair, chest up, and both knees bent with the feet on the ground in front of you.
Finish: Lift one knee so that it is higher than the opposite knee, or slightly rock back with both feet on the ground. Tighten your abdominals. Keep your chest up. Pause. Slowly return to starting position.

