



ACTION FOR PREVENTION

Ensuring the kidney health of my patients
living with type 2 diabetes

REFERENCE
GUIDE



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PRACTICAL REFERENCE GUIDE FOR COMMUNITY PHARMACISTS:

Treatment for people living with type 2 diabetes (T2D) to reduce vascular complications



T2D PATIENT PROFILE

This information should appear in the patient's file for appropriate analysis.



RISK ASSESSMENT

Assess the cardiorenal risk and whether the target HbA1c has been achieved.



T2D ACTION

Write a pharmaceutical opinion if new medication is required



FOLLOW-UP

Carry out a suitable follow-up of the efficacy and safety.

RENAL



eGFR

ACR

eGFR: Estimated glomerular filtration rate (mL/min./1.73 m²)

ACR: Albumin-to-creatinine ratio (urinary; mg/mmol or mg/g)

KDIGO RISK

Albuminuria category (mg/mmol)

eGFR categories (mL/min./1.73 m ²)	Albuminuria category (mg/mmol)		
	A1: <30 mg/g	A2: 3-300 mg/g	A3: >300 mg/g
≥90	1 (if CKD)	1	2
60-90	1 (if CKD)	1	2
45-59	1	2	3
30-44	2	3	3
<30	3	3	4+

Renal risk: Low, Moderately high, High, Very high

RENAL RISK?

Moderately high

High

Very high

CARDIO-VASCULAR



Blood pressure

Lipid profile

RISK FACTORS:

- Smoking
- **Dyslipidemia** (medicated or LDL ≥3.4 mmol/L, HDL <1.0 mmol/L (men) or <1.3 mmol/L (women) or triglycerides ≥2.3 mmol/L)
- **Hypertension** (medicated or BP ≥130 mmHg systolic or ≥80 mmHg diastolic)

CV RISK?

Heart failure

Atherosclerotic cardiovascular disease

>60 years with ≥ 2 risk factors?

BLOOD GLUCOSE



HbA1c

TARGET:

- ≤7.0% for most patients
- ≤6.5% to reduce the risk of CKD and retinopathy in the presence of a low risk of hypoglycemia

TARGET HbA1c ACHIEVED?

Yes

No

EDUCATION FOR PATIENTS:

- Advice for the prevention and management of side effects
- Adherence
- “**SADMANS**”

REASSESS:

- eGFR and urinary ACR at least 1x/year according to KDIGO risk
- HbA1c 1x/year; if risk factors present, 1-2x/year and validate whether optimal blood glucose
- CV and renal risk factors annually
- During onset of side effects and/or addition of treatments on a regular basis

PRESCRIPTION FOR LABORATORY TESTS

PRINT

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PRESCRIPTION FORM FOR LABORATORY TESTS (COMMUNITY PHARMACISTS)

FULL CONTACT INFORMATION OF THE PHARMACY (Required)

Routine

Stat

PATIENT'S FIRST AND LAST NAME

HEALTH INSURANCE NUMBER (Required)

ADDRESS

TELEPHONE NUMBER

PHARMACIST SIGNATURE

Urinary albumin-to-creatinine ratio

(ACR) eGFR

Serum creatinine

ELECTROLYTES

(Please check the desired electrolyte[s])

Sodium

Potassium

Fasting blood glucose (At least 8 hours before the test)

Blood glucose

(Specify the desired time)

Hemoglobin (HbA1c)

Lipid profile (Cholesterol, triglycerides, HDL, LDL)

(Fasting for 12 hours and 3 days with no alcohol before the test)

LICENCE NUMBER

DATE

PATIENT LABEL

DATE:

DEAR DOCTOR,

After reviewing the information to which I have access, I would like to bring your attention to the following:

THIS PATIENT HAS A RENAL RISK THAT IS:

Moderately high High Very high

PATIENT LABEL

THIS PATIENT HAS A HIGH CARDIOVASCULAR RISK DUE TO:

Heart failure Presence of atherosclerotic cardiovascular disease

Due to age >60 years and ≥ 2 risk factors (smoking, dyslipidemia or hypertension)

THIS PATIENT HAS NOT ACHIEVED THE TARGET HbA1c:

— Target: \leq % — Value measured: %

Under these circumstances and in the context of the patient's diabetes treatment, I believe the patient would benefit from the following intervention(s):

Addition of an ACE inhibitor or ARB

— Medication: — Dose:

Addition of an SGLT2i

— Medication: — Dose:

Addition of a GLP-1 RA

— Medication: — Dose:

Addition of an antihyperglycemic agent

— Medication: — Dose:

Adjustment of treatment

— Medication: — Dose:

Discontinuing a medication

— Medication:

Please also consider that, if you agree with this proposal, the following follow-up to be carried out is suggested:

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FOLLOW-UP TO BE CARRIED OUT:

By the physician

By the pharmacist

SUGGESTED FOLLOW-UP:

Adjustments to the medication dosage based on efficacy and safety

Laboratory tests

eGFR after

weeks

Serum potassium

Urinary albumin-to-creatinine ratio

Serum sodium

(ACR) HbA1c

Lipid profile (cholesterol, triglycerides, HDL, LDL)

Blood glucose

Other (e.g. apo B):

Serum creatinine

Regardless of the follow-up agreed upon, we will keep you informed of any change or any other intervention that we may carry out in relation to the items contained in this document.

If you agree with this proposal, please fill out the “Physician information” section below and return it to us by fax.

If your recommendations are not found within the choices offered above, you can enter them in the “new prescription” section below.

Yours faithfully,

PHYSICIAN INFORMATION:

Name: _____

Licence number: _____

Fax: _____

Telephone: _____

PHARMACIST INFORMATION:

Name: _____

Licence number: _____

Fax: _____

Telephone: _____

NEW PRESCRIPTION:

Medication: _____

Date: _____

Qty: _____

Refills: _____

Name: _____

Licence number: _____

Signature: _____

PHARMACY INTERVENTION NOTE

PRINT

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PATIENT IDENTIFICATION

For your attention

To be given to the prescriber

DATE :

This note contains important information for your treatment. Store it carefully. This information has also been added to your pharmacological file.

PATIENT LABEL

SITUATION REQUIRING INTERVENTION:

DETAILS:

INTERVENTION:

COMMENTS:

AGREED FOLLOW-UP:

PLEASE CONTACT US IF YOU HAVE ANY QUESTIONS.

PHARMACIST:

INFORMATION: RENAL RISK (KDIGO)

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ASSESS THE PATIENT ACCORDING TO THE KDIGO TOOL TO DETERMINE THE PATIENT'S RISK LEVEL:

		Albuminuria category (mg/mmol)		
		A1:	A2:	A3:
eGFR categories (mL/min/1.73 m ²)	mg/mmol	<3	3-30	>30
	mg/g	<30	30-300	>300
≥90	1 (if CKD)	1	2	
60-90	1 (if CKD)	1	2	
45-59	1	2	3	
30-44	2	3	3	
<30	3	3	4+	

Renal risk:	Low	Moderately high	High	Very high
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The numbers suggest the number of times these measurements should be taken per year.

For people with atherosclerotic cardiovascular disease, CKD or HF OR aged > 60 years and have 2 CV risk factors (Fig. 2.1)

2020

DIABETES
CANADA

ADD or REPLACE antihyperglycemic agent by selecting an agent with proven cardiorenal benefits

		Confirmed cardiovascular or renal disease			Risk factors
		Atherosclerotic cardiovascular disease	CKD	HF	> 60 years with 2 CV risk factors†
Lower risks on events	Major CV events	GLP-1 receptor agonist GLP-1^{††} or SGLT2 inhibitor*	SGLT2 inhibitor* or GLP-1 receptor agonist ^{††}		GLP-1 receptor agonist^{††}
	Hospitalizations for HF	SGLT2 inhibitor*	SGLT2 inhibitor*	SGLT2 inhibitor* (and lower CV mortality rate)	SGLT2 inhibitor*
	Renal pathology progression	SGLT2 inhibitor*	SGLT2 inhibitor*		SGLT2 inhibitor*

Highest level of evidence	Level A	Level B	Level C or D
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† Smoking; dyslipidemia (lipid-lowering treatment or observed and untreated level of LDL cholesterol ≥3.4 mmol/L or HDL cholesterol <1.0 mmol/L for men and <1.3 mmol/L for women or triglycerides ≥2.3 mmol/L); or hypertension (antihypertensive treatment or systolic BP ≥140 mmHg or diastolic BP ≥95 mmHg untreated)

†† Discontinue DPP-4 inhibitor when starting a GLP-1 receptor agonist

* Start only if eGFR is > 30 mL/min/1.73 m²

RISK FACTORS:

- **Smoking**
- **Dyslipidemia** (medicated or LDL ≥ 3.4 mmol/L, HDL < 1.0 mmol/L (men) or < 1.3 mmol/L (women) or triglycerides ≥ 2.3 mmol/L)
- **Hypertension** (medicated or BP ≥ 130 mmHg systolic or ≥ 80 mmHg diastolic)

For people with atherosclerotic cardiovascular disease, CKD or HF OR aged > 60 years and have 2 CV risk factors (Fig. 2.1)

2020

ADD or REPLACE antihyperglycemic agent by selecting an agent with proven cardiorenal benefits

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Lower risks on events	Major CV events	GLP-1 receptor agonist GLP-1^{††} or SGLT2 inhibitor*	SGLT2 inhibitor* or GLP-1 receptor agonist ^{††}		GLP-1 receptor agonist^{††}
	Hospitalizations for HF	SGLT2 inhibitor*	SGLT2 inhibitor*	SGLT2 inhibitor* (and lower CV mortality rate)	SGLT2 inhibitor*
	Renal pathology progression	SGLT2 inhibitor*	SGLT2 inhibitor*		SGLT2 inhibitor*
Highest level of evidence		Level A	Level B	Level C or D	

† Smoking; dyslipidemia (lipid-lowering treatment or observed and untreated level of LDL cholesterol ≥ 3.4 mmol/L or HDL cholesterol < 1.0 mmol/L for men and < 1.3 mmol/L for women or triglycerides ≥ 2.3 mmol/L); or hypertension (antihypertensive treatment or systolic BP ≥ 140 mmHg or diastolic BP ≥ 95 mmHg untreated)

†† Discontinue DPP-4 inhibitor when starting a GLP-1 receptor agonist

* Start only if eGFR is > 30 mL/min/1.73 m²

TARGET:

- $\leq 7.0\%$ for most patients
- $\leq 6.5\%$ to reduce the risk of CKD and retinopathy in the presence of a low risk of hypoglycemia

If an additional reduction in the blood glucose level is necessary (Fig. 2.2)

2020

ADD or REPLACE antihyperglycemic agent^{††} based on clinical priorities^{†††} start insulin for symptomatic hyperglycemia and/or metabolic decompensation (Fig. 3)

PROVEN cardiorenal benefit in high-risk populations**	CV safety, but NO proven cardiorenal benefit**	RISK of HF
Weight loss		
GLP-1 receptor agonist dulaglutide, liraglutide, semaglutide SGLT2i canagliflozin, dapagliflozin, empagliflozin	GLP-1 receptor agonist exenatide ER, lixisenatide <i>ertugliflozin*** (SGLT2i)</i>	
	DPP4i sitagliptin, linagliptin, alogliptin Acarbose	saxagliptin(DPP4i)
	Sulfonylureas Meglitinides Insulin Hypoglycemia	Thiazolidinediones Weight gain

†† The efficacy of all antihyperglycemic agents in lowering blood glucose is supported by level A evidence.

††† Take into account the degree of hyperglycemia, costs and coverage by insurance, renal function, comorbidities, side effects profile and the possibility of pregnancy.

** In studies of CV events conducted in people with atherosclerotic cardiovascular disease, CKD, HF or at high CV risk.

*** The VERTIS study (study of CV events with ertugliflozin) presented to the ADA in June 2020 demonstrated the non-inferiority for major CV events. Manuscript unpublished at the time of writing.

ENSURE THE SAFETY OF PATIENTS WITH A RISK OF DEHYDRATION (VOMITING, DIARRHEA, BEFORE MAJOR SURGERY, AND DURING SERIOUS ILLNESS AND INFECTION)

Ensure adequate rehydration (water, broth, diet soda, sugar-free Kool-Aid™, diet Jell-O™; avoid drinks containing caffeine).

Discontinue the administration of medications **according to the sick days management appendix**.

Resume when diet/hydration has returned to normal.

S Sulphonylureas, 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

CARDIORENAL INDICATIONS IN PEOPLE WITH T2D – SGLT2i AND GLP-1 RA AVAILABLE IN CANADA

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SGLT2 inhibitor

	Canagliflozin	Dapagliflozin	Empagliflozin
Cardiovascular indication	Indicated to reduce the risk of MACE in adults with T2D and confirmed cardiovascular disease.	Indicated to reduce the risk of hospitalization for heart failure in adults with T2D with CV risk factors or confirmed CV disease.	Indicated to reduce the incidence of death of CV origin in patients with T2D who also have confirmed CV disease.
Renal indication	Indicated to reduce the risk of end-stage renal disease, doubling of serum creatinine and death of CV origin in adults with T2D and diabetic nephropathy with albuminuria (>33.9 mg/mmol).	Indicated to reduce the risk of sustained eGFR decline, end-stage kidney disease, and cardiovascular and renal death in adults with chronic kidney disease (CKD).	None
Heart failure Indication	None	Indicated in adults, as an adjunct to standard of care therapy, for the treatment of heart failure with reduced ejection fraction (HFrEF) to reduce the risk of cardiovascular (CV) death, hospitalization for heart failure and urgent heart failure visit.	None
Add-on/combination therapy to improve the control of blood glucose	Monotherapy or in combination with: <ul style="list-style-type: none"> • Metformin • A sulphonylurea (with or without metformin) • Pioglitazone and metformin • Metformin and sitagliptin • Insulin (with or without metformin) 	Monotherapy or in combination with: <ul style="list-style-type: none"> • Metformin • A sulphonylurea • Metformin and a sulphonylurea • Sitagliptin (with or without metformin) • Insulin (with or without metformin) 	Monotherapy or in combination with: <ul style="list-style-type: none"> • Metformin • Metformin and a sulphonylurea • Pioglitazone (with or without metformin) • Linagliptin and metformin • Basal or prandial insulin (with or without metformin)

GLP-1 RA

	Dulaglutide	Liraglutide	Semaglutide
Cardiovascular indication	Indicated to reduce the risk of non-fatal stroke in adults with T2D who have multiple CV risk factors or confirmed CV disease.	Indicated to reduce the frequency of death of cardiovascular origin in patients with T2D and confirmed CV disease.	CV indication under study in Canada
Add-on/combination therapy to improve the control of blood glucose	Monotherapy or in combination with: <ul style="list-style-type: none"> • Metformin • Metformin and a sulphonylurea • An SGLT2i and metformin • Insulin and metformin 	Monotherapy or in combination with: <ul style="list-style-type: none"> • Metformin • Metformin and a sulphonylurea • Metformin and insulin 	Monotherapy or in combination with: <ul style="list-style-type: none"> • Metformin • Metformin and a sulphonylurea • Metformin or a sulphonylurea and an SGLT2 • Insulin and metformin