Advances in Optimizing the Management of Chronic Kidney Disease in Type 2 Diabetes

Toolkit for Healthcare Professionals

This toolkit was developed by **SEI Healthcare** in collaboration with **Dr. Robert Provenzano** (Wayne State University School of Medicine, Detroit, MI, USA) and **Dr. Peter Rossing** (Department of Clinical Medicine, University of Copenhagen, Denmark).

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You can watch our **CKD/T2D webinar** in full on-demand through our learning platform, **www.IME.md**, where you can also find the two **patient cases** presented.

Selected Recommendations from KDIGO/ADA Clinical Practice Guidelines[1–4]

Blood pressure	• Adults with HTN and CKD should be treated to a target SBP <120 mmHg, which has been shown to reduce the risk of CV events and all-cause mortality in CKD.
Glycemic monitoring and targets	• HbA1c should be measured regularly. Reliability decreases with advanced CKD, particularly for patients treated with dialysis, and results should be interpreted with caution. • Targets for glycemic control should be individualized, ranging from <6.5% to <8.0%.
SGLT2i	• SGLT2i markedly reduce risk of CKD progression, HF, and ASCVD, even when glycemia is already well-controlled. • Consider SGLT2 initiation in individuals with T2D, CKD and eGFR ≥20 mL/min/1.73 m2. • A reversible decrease in eGFR may occur and is generally not an indication to discontinue therapy.
GLP-1 RA	• A GLP-1 RA is recommended in individuals with T2D and CKD who have not achieved individualized glycemic targets despite metformin and SGLT2i, or who are unable to use those medications. • A GLP-1 RA may be preferentially used in individuals with obesity, T2D, and CKD to promote intentional weight loss.
RAS blockade	• The use of an ACEi or ARB, titrated to the maximum approved or highest tolerated dose, is recommended in individuals with T1D or T2D, HTN, and UACR ≥30 mg/g. • Monitor serum potassium and creatinine.
ns-MRA	• ns-MRAs reduce risks of CKD progression and CV events in people with T2D and albuminuria. • Use a ns-MRA for individuals with T2D, eGFR ≥25 mL/min/1.73 m2, normal serum potassium, and UACR ≥30 mg/g, despite maximum tolerated dose of ACEi or ARB. • A ns-MRA be added to RAASi and SGLT2i. • Monitor serum potassium regularly.

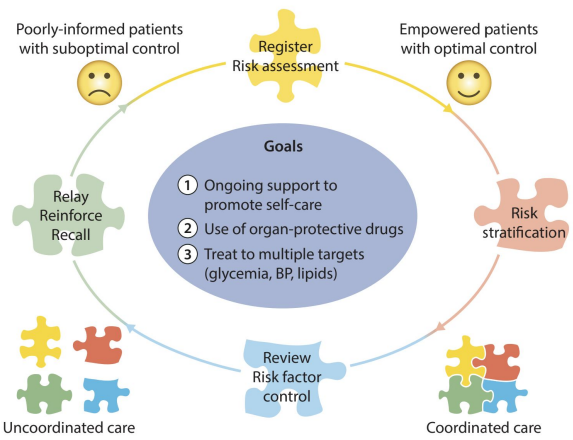

Figure 1. Team-based integrated care delivered by physicians and nonphysician personnel supported by decision-makers.[1]
Comprehensive care: People with diabetes and CKD have multisystem disease that requires a foundation of lifestyle intervention and drug therapy that improves kidney and CV outcomes. A team-based and integrated approach to manage these individuals should focus on regular assessment, control of multiple risk factors, and structured education in self-management to protect kidney and CV function.
Empower your patients: Encourage them to be an active part of the team managing their diabetes and kidney disease. Focusing on self-management and control of multiple risk factors will help protect kidney function and reduce the risk of complications.
Image source: *KDIGO 2022 Clinical Practice Guideline for Diabetes Management in CKD.*

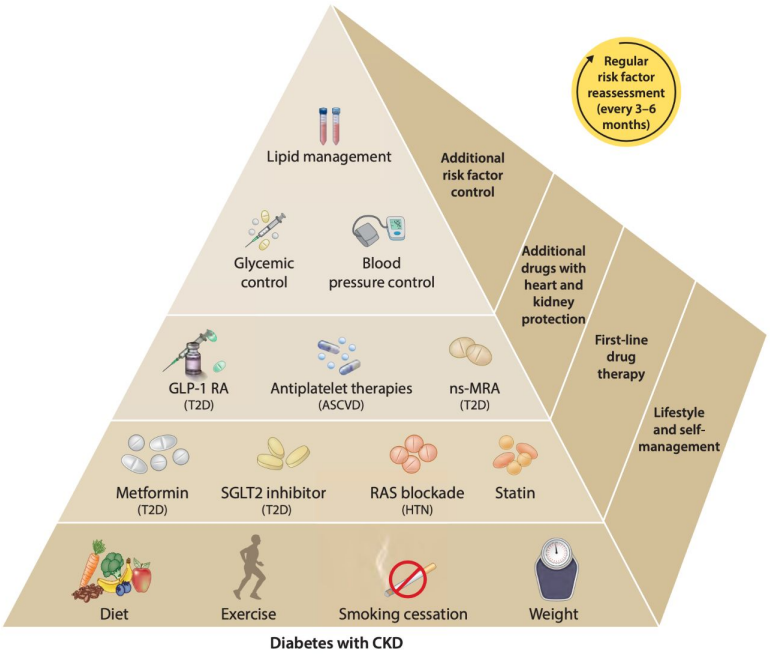

Figure 3. Holistic kidney–heart risk factor management.[1]

People with diabetes and CKD should be treated with a comprehensive approach to improve kidney and CV outcomes. This should include a foundation of lifestyle modification and self-management for all patients, upon which are layered first-line drug therapies according to clinical characteristics, additional drugs with proven kidney and CV protection as guided by assessments of residual risk, and additional interventions as needed to further control risk factors.

Image source: *KDIGO 2022 Clinical Practice Guideline for Diabetes Management in CKD.*

GFR categories (ml/min/ 1.73 m²) Description and range				Persistent albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30–300 mg/g 3–30 mg/mmol	>300 mg/g >30 mg/mmol
	G1	Normal or high	≥90		Monitor	Refer*
	G2	Mildly decreased	60–89		Monitor	Refer*
	G3a	Mildly to moderately decreased	45–59	Monitor	Monitor	Refer
	G3b	Moderately to severely decreased	30–44	Monitor	Monitor	Refer
	G4	Severely decreased	15–29	Refer*	Refer*	Refer
	G5	Kidney failure	<15	Refer	Refer	Refer

Persistent albuminuria categories Description and range		
A1	A2	A3
Normal to mildly increased	Moderately increased	Severely increased
<30 mg/g <3 mg/mmol	30–300 mg/g 3–30 mg/mmol	>300 mg/g >30mg/mmol
1 if CKD	1	2
1 if CKD	1	2
1	2	3
2	3	3
3	3	4+
4+	4+	4+

Figure 3A. Referral decision making by GFR and albuminuria.[5] *Referring clinicians may wish to discuss with their nephrology service depending on local arrangements regarding monitoring or referring.

Figure 3B. GFR and albuminuria grid to reflect the risk of progression by color.[5] The numbers in the boxes are a guide to the frequency of monitoring (number of times per year). Green reflects stable disease, with follow-up measurements annually if CKD is present; yellow requires caution and measurements at least once per year; orange requires measurements twice per year; red requires measurements at 3 times per year while deep red may require closest monitoring approximately 4 times or more per year (at least every 1–3 months). These are general parameters only based on expert opinion and must take into account underlying comorbid conditions and disease state, as well as the likelihood of impacting a change in management for any individual patient.

Image source: *KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease.*

UPDATE! Current guidance from the ADA, ASN and NKF recommend the implementation of the 2021 CKD-EPI creatinine equation refit without the race variable in all laboratories of the United States.[6]

Abbreviations: ACEi, angiotensin-converting enzyme inhibitor; ADA, American Diabetes Association; ARB, angiotensin II receptor blocker; ASCVD, atherosclerotic cardiovascular disease; ASN, American Society of Nephrology; BP, blood pressure; CKD, chronic kidney disease; CV, cardiovascular; eGFR, estimated glomerular filtration rate; GFR, glomerular filtration rate; GLP-1 RA, glucacon-like peptide-1 receptor agonist; HbA1c, glycated hemoglobin; HF, heart failure; HTN, hypertension; KDIGO, Kidney Disease: Improving Global Outcomes; NKF, National Kidney Foundation; ns-MRA, nonsteroidal mineralocorticoid receptor antagonist; RAASi, renin-angiotensin-aldosterone system inhibitor; SBP, systolic blood pressure; SGLT2i, sodium-glucose cotransporter-2 inhibitor; T1D, type 1 diabetes; T2D, type 2 diabetes; UACR, urinary albumin-to-creatinine ratio.

References: 1) KDIGO 2022 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease. *Kidney Int*. 2022;102(5S):S1–S127. **2)** Rossing P, et al. *Kidney Int*. 2022;102(5):990–999. **3)** de Boer IH, et al. *Kidney Int*. 2022;102(5):974–989. **4)** Cheung AK, et al. *Kidney Int*. 2021;99(3):559–569. **5)** KDIGO 2012 clinical practice guideline for the evaluation and management of chronic kidney disease. *Kidney Int*. 2013;3:1–150. **6)** ElSayed NA, et al. 11. *Diabetes Care*. 2023;46(Suppl 1):S191–S202.