# CHRONIC KIDNEY DISEASE WITH TYPE 2 DIABETES AND CARDIOVASCULAR DISEASE

PRIMARY CARE MANAGEMENT OF **CKD**

**CVD is the leading cause of death in patients with CKD, who face an increased risk of adverse CV outcomes**

**Primary care plays a vital role in preventing CKD progression and reducing adverse CV occurrences**

**Many patients with T2D and CKD remain at residual risk for CKD progression and CV events despite receiving standard treatment**

## Monitoring for residual risk

**What?**

| Comorbidity | What to measure |
|---|---|
| CKD monitoring | eGFR, uACR, urinalysis |
| CVD and dyslipidemia | Blood pressure, cardiovascular risk stratification, lipid status |
| Diabetes | Blood glucose, HbA1c |

**Look out for**

- Dose adjustments based on eGFR
- Hyperkalemia if RAS inhibition is included
- CKD/CVD risk factors (e.g. anemia, bone disease, heart failure)

**When?**

- The KDIGO heatmap can be used as a tool to guide frequency of monitoring

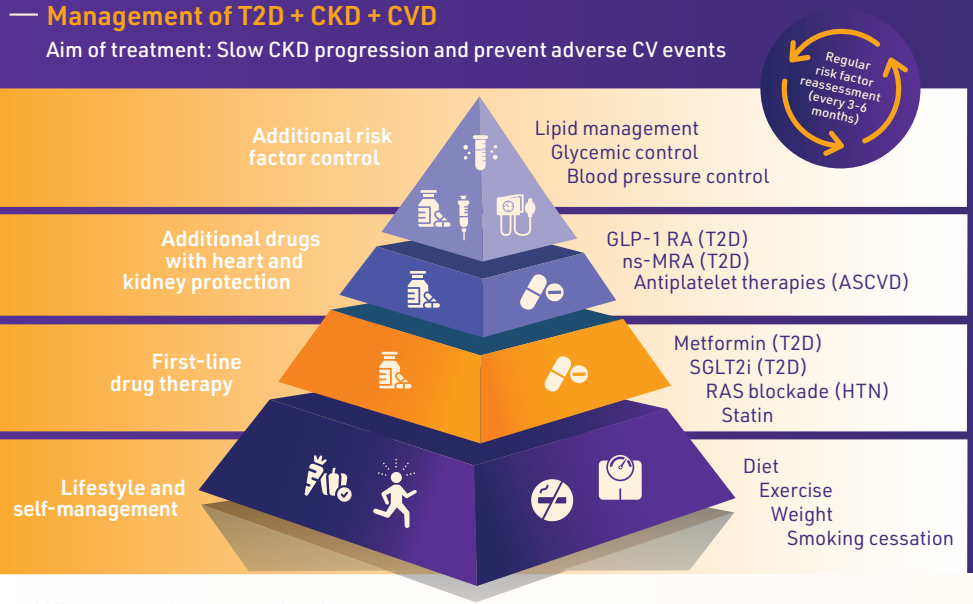
| GFR categories (mL/min/1.73m²) Description and range | | | Albuminuria categories Description and range: A1 Normal to mildly increased <30 mg/g <3 mg/mmol | A2 Moderately increased 30–299 mg/g 3–29 mg/mmol | A3 Severely increased ≥300 mg/g ≥30 mg/mmol |
|---|---|---|---|---|---|
| G1 | Normal or high | ≥90 | Screen (1) | Treat (1) | Treat and refer (3) |
| G2 | Mildly decreased | 60–89 | Screen (1) | Treat (1) | Treat and refer (3) |
| G3a | Mildly to moderately decreased | 45–59 | Treat (1) | Treat (2) | Treat and refer (3) |
| G3b | Mildly to severely decreased | 30–44 | Treat (2) | Treat and refer (3) | Treat and refer (3) |
| G4 | Severely decreased | 15–29 | Treat and refer (3) | Treat and refer (3) | Treat and refer (4+) |
| G5 | Kidney failure | <15 | Treat and refer (4+) | Treat and refer (4+) | Treat and refer (4+) |

Numbers: Indicate how often (per year) you should be screening or monitoring. Monitor, treat, or refer: Indicates the recommended course of action. CKD is classified based on Cause (C), GFR (G), Albuminuria (A).

Low risk (if no other markers of kidney disease, no CKD) · Moderately increased risk · High risk · Very high risk

## Management of T2D + CKD + CVD

Aim of treatment: Slow CKD progression and prevent adverse CV events




## Management pearls

- SGLT2i should be initiated or continued for those with CKD and T2D when eGFR ≥20 mL/min/1.73m² and can be continued after initiation at lower eGFR levels
- Metformin should be initiated/continued when eGFR ≥30 mL/min/1.73 m²
- RAS inhibitors (ACEi or ARB) should be initiated or continued as first-line therapy at the maximal tolerated dose
- Intensification of statin therapy is recommended for secondary prevention in patients with established CVD
- Aspirin should be used for lifelong secondary prevention in patients with established CVD
- Long-acting GLP-1 RA are recommended for patients who do not achieve individualized glycemic targets despite use of metformin and SGLT2i
- Additional medications with cardiorenal protective effects, such as non-steroidal MRAs* can be used in patients at residual risk despite standard treatment

## When to refer to nephrology

**Consult/refer to nephrology if :**

- KFRE score rises above 3-5%
- Developing a treatment plan and primary care practitioner not confident in the recommended first-line treatment
- Unexplained decline in eGFR (≥5 mL/min/1.73m²) over 12 months or sudden decline over days to weeks
- Unexplained significant albuminuria or hematuria
- Persistent hyperkalemia
- Resistant hypertension
- Recurring kidney stones
- Hereditary kidney disease

*Finerenone is currently the only nonsteroidal MRA with proven clinical kidney and cardiovascular benefits

**References**: de Boer IH, et al. *Diabetes Care* 2022; 45: 3075–3090; ISN & KDIGO. ISN-KDIGO early screening booklet. Accessible at: https://www.theisn.org/wp-content/uploads/2023/02/ISN_KDIGO_EarlyScreeningBooklet_PRINT_Updated.pdf (accessed December 2023); Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. KDIGO 2023 Clinical Practice Guideline for the evaluation and management of chronic kidney disease. July 2023 draft. Kidney Disease: Improving Global Outcomes (KDIGO) Diabetes Work Group. *Kidney Int* 2022; 102: S1–S127; Marx N, et al. *Eur Heart J 2023*; 44: 4043–4140.

**Acronyms**: ACEi, angiotensin-converting-enzyme inhibitor; ARB, angiotension receptor blocker; CKD, chronic kidney disease; CV, cardiovascular; CVD, cardiovascular disease; eGFR, estimated glomerular filtration rate; GLP-1 RA, glucagon-like peptide-1 receptor agonist; HTN, hypertension; KFRE, kidney failure risk equation; MRA, mineralcorticoid receptor antagonist; RAS, renin-angiotensin system; SGLT2i, sodium-glucose cotransporter-2 inhibitor; T2D, type 2 diabetes; uACR, urine albumin-creatinine ratio.

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