

## Section 11:

# Chronic Kidney Disease and Risk Management

### Screening for Chronic Kidney Disease (CKD)



#### Who?

- Everyone with type 2 diabetes
- Everyone with type 1 diabetes for  $\geq 5$  years



#### How?

- Urinary albumin-to-creatinine ratio (UACR)
- Estimated glomerular filtration rate (eGFR)



#### How often?

Annually

#### Monitoring Established CKD

**How?** UACR and eGFR. Use the CKD Epidemiology Collaboration's CKD-EPI Refit equation, which eliminates race as a variable, for all individuals.

**How often?** One to four times per year, depending on the stage of the disease



### Classification of CKD

CKD is classified based on:

- Cause (C)
- GFR (G)
- Albuminuria (A)

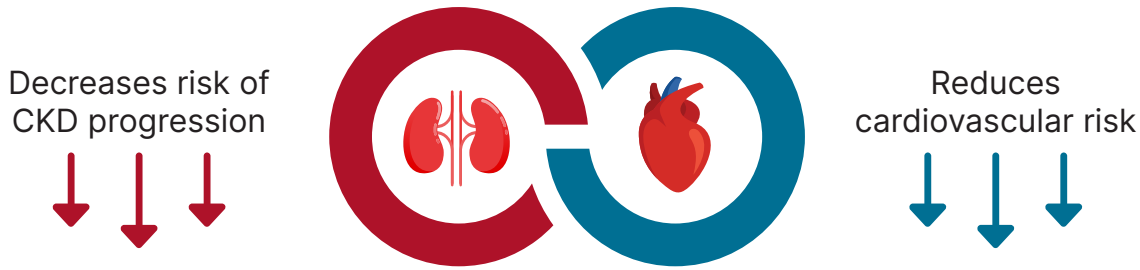
GFR categories (mL/min/1.73 m <sup>2</sup> ) Description and range	Albuminuria categories Description and range			Risk level		
	A1	A2	A3	Low risk	Moderately increased risk	High risk
	Normal to mildly increased <30 mg/g <3 mg/mmol	Moderately increased 30–299 mg/g 3–29 mg/mmol	Severely increased $\geq 300$ mg/g $\geq 30$ mg/mmol	Screen 1	Treat 1	Treat and refer 3
G1 Normal or high $\geq 90$	Screen 1	Treat 1	Treat and refer 3	Low risk	Moderately increased risk	High risk
G2 Mildly decreased 60–89	Screen 1	Treat 1	Treat and refer 3	Low risk	Moderately increased risk	High risk
G3a Mildly to moderately decreased 45–59	Treat 1	Treat 2	Treat and refer 3	Moderately increased risk	High risk	Very high risk
G3b Moderately to severely decreased 30–44	Treat 2	Treat and refer 3	Treat and refer 3	Moderately increased risk	High risk	Very high risk
G4 Severely decreased 15–29	Treat and refer 3	Treat and refer 3	Treat and refer 4+	High risk	Very high risk	Very high risk
G5 Kidney failure <15	Treat and refer 4+	Treat and refer 4+	Treat and refer 4+	Very high risk	Very high risk	Very high risk

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

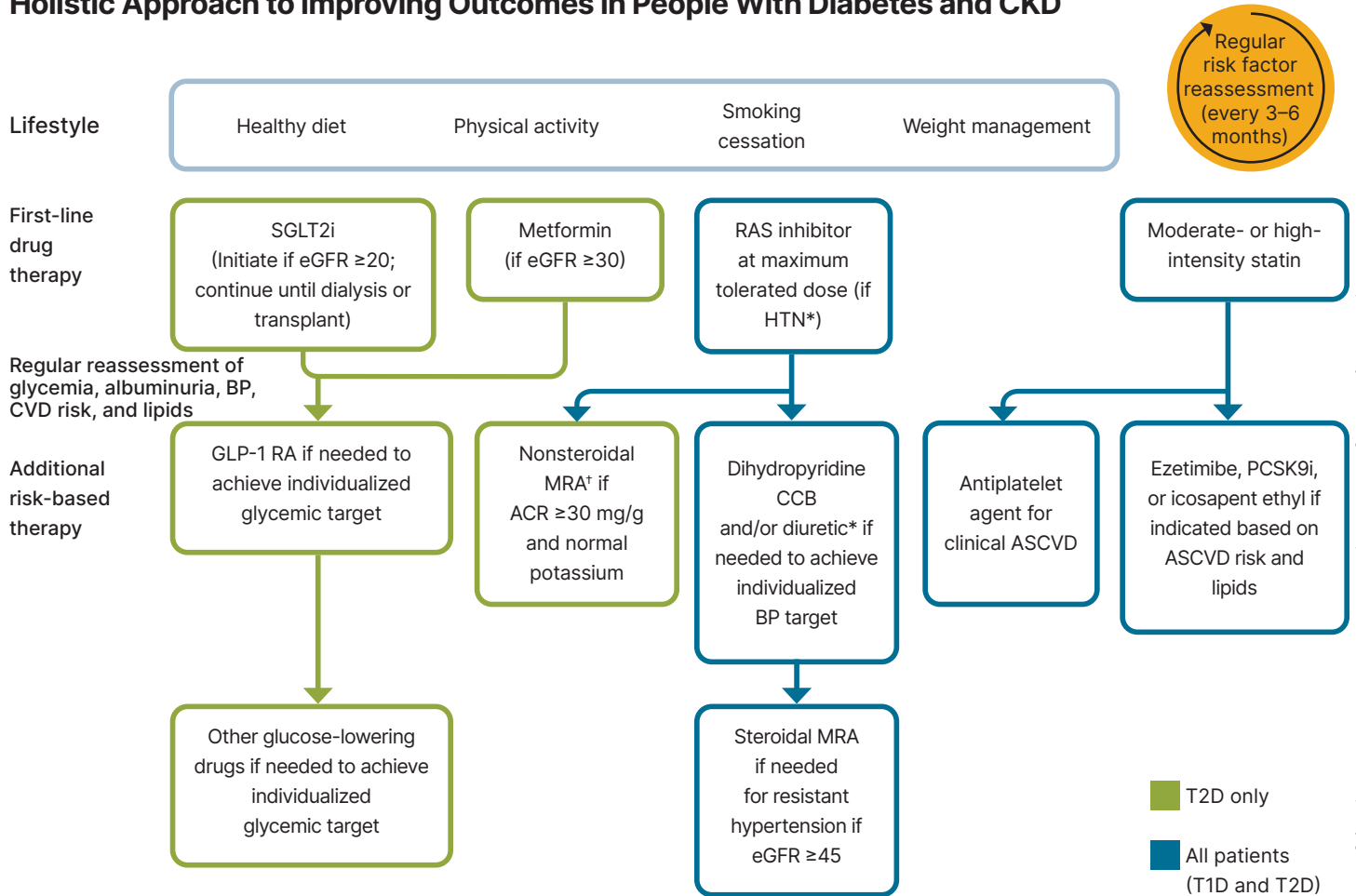
Risk of CKD progression, frequency of visits, and referral to nephrology according to glomerular filtration rate (GFR) and albuminuria. Numbers in the boxes are the number of times per year to screen or monitor. Green reflects no evidence of CKD by eGFR or albuminuria. Suggested monitoring of prevalent CKD varies from once (yellow) to four or more times (deep red) per year. Adapted from de Boer IH, Khunti K, Sadusky T, et al. Diabetes management in chronic kidney disease: a consensus report by the American Diabetes Association (ADA) and Kidney Disease: Improving Global Outcomes (KDIGO). *Diabetes Care* 2022;45:3075–3090.

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## Why Manage CKD?



## Holistic Approach to Improving Outcomes in People With Diabetes and CKD



eGFR is presented in units of mL/min/1.73 m<sup>2</sup>. \*ACEi or ARB (at maximal tolerated doses) should be first-line therapy for hypertension when albuminuria is present. Otherwise, dihydropyridine CCB or diuretic can also be considered; all three classes are often needed to attain BP targets. †Finerenone is currently the only nonsteroidal MRA with proven clinical kidney and cardiovascular benefits. ACEi, ACE inhibitor; ACR, albumin-to creatinine ratio; ARB, angiotensin receptor blocker; ASCVD, atherosclerotic cardiovascular disease; BP, blood pressure; CCB, calcium channel blocker; CVD, cardiovascular disease; GLP-1 RA, glucagon-like peptide 1 receptor agonist; HTN, hypertension; MRA, mineralocorticoid receptor antagonist; PCSK9i, proprotein convertase subtilisin/kexin type 9 inhibitor; RAS, renin-angiotensin system; SGLT2i, sodium-glucose cotransporter 2 inhibitor; T1D, type 1 diabetes; T2D, type 2 diabetes. Adapted from de Boer IH, Khunti K, Sadosky T, et al. Diabetes management in chronic kidney disease: a consensus report by the American Diabetes Association (ADA) and Kidney Disease: Improving Global Outcomes (KDIGO). Diabetes Care 2022;45:3075–3090.

## Clinical Tips

- ✓ Periodically check serum creatinine and potassium levels when ACE inhibitor, angiotensin receptor blocker (ARB), or nonsteroidal mineralocorticoid receptor antagonist is used.
- ✓ Do not discontinue ACE inhibitor or ARB therapy for increases  $\leq 30\%$  increases in serum creatinine in the absence of volume depletion.
- ✓ Aim for a urinary albumin reduction  $\geq 30\%$  in people with CKD and urinary albumin  $\geq 300$  mg/g to slow CKD progression.