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Best Practices for CKD Identification, Risk Stratification & Management

Step 1: Identify Conditions of ↑CKD Risk

Diabetes	Heart Failure	Family History of CKD
Hypertension	Age > 65 years	Prior AKI or AKD
History of CVD	Obesity	Social and area deprivation

Yes

Step 2: Screen for CKD using TWO tests:

1. "Spot" urine albumin-creatinine ratio (uACR) to detect albuminuria
2. Serum creatinine with estimated glomerular filtration rate (eGFR)

Step 3: Is either of the following present for 3 months or more?

- eGFR < 60 mL/min/1.73 m^2
- uACR ≥ 30 mg/g

No → Repeat evaluation at least annually

Yes

Step 4: Classify CKD stage based on *Cause–Glomerular filtration rate–Albuminuria (C-G-A) framework*

G — eGFR Category (mL/min/1.73 m^2)

≥ 90	= G1
60–89	= G2
45–59	= G3a
30–44	= G3b
15–29	= G4
< 15	= G5

A — Albuminuria Category (mg/g)

< 30	= A1 (normal or mildly ↑)
30–300	= A2 (moderately ↑)
>300	= A3 (severely ↑)

C — Identify and treat specific cause of CKD

Cause is determined based on presence or absence of systemic disease, and/or kidney biopsy, imaging, or genetic findings

Step 5: Manage and monitor

CV risks, progression factors, complications, and safety risk, per guidance below

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Reduce CV risk

- **Consider statin therapy (G1-G5)**
  - All ≥50 years; 18-49 years if high CVD risk (DM, history of ASCVD, or 10-yr ASCVD risk >10%)
  - Additional lipid-lowering treatment may be warranted for higher-risk individuals
- **Consider SGLT-2i (independent of T2DM) if:** eGFR ≥20, especially if uACR ≥30 (A2+) and/or HF
- **Consider NS-MRA after max tolerated ACE-I/ARB if:** HFpEF and/or T2DM, uACR ≥30 (A2+), eGFR ≥25, and K <5
- **Consider GLP-1 RA for T2DM and high CVD risk**
- **Low-dose aspirin for secondary ASCVD prevention unless bleeding risk outweighs benefits**

Slow CKD progression

- **ACE-I/ARB if HTN+DM or uACR ≥30 (A2+), titrated to the highest tolerated dose**
- **Consider SGLT-2i, NS-MRA, and/or GLP-1 RA as above**

BP management with CKD

- **Targets:**
  - **Without DM:** SBP <120 (if tolerated) using standardized office BP measurement; SBP <130 reasonable
  - **With DM:** SBP <130
  - Consider less intensive therapy if limited life expectancy, high fall risk, frailty, or symptomatic postural hypotension
- **Treatment:**
  - Thiazide, CCB, or ACE-I/ARB 1st line if uACR < 30 (A1)
  - Dietary sodium <2000 mg/day
  - Balance AKI & polypharmacy risk, especially if low GFR
  - Avoid any combination of ACE-I, ARB, and DRI therapy

DM management with CKD

- **Targets:**
  - A1C: Individualized from <6.5% to <8% depending on CKD severity, established CVD, and other factors
  - CGM TIR: >70% (70-180 mg/dL or patient-specific range)
- **T2DM Treatment:**
  - Prioritize SGLT-2i (if GFR ≥20), metformin (G1-G3b), and/or long-acting GLP-1 RA
  - Referral for DSMES & MNT

Screen for CKD complications (G3a-G5)

- **Anemia:**
  - Evaluate if Hb <13 g/dL (men) or <12 g/dL (women)
  - Treat iron deficiency first
  - Refer to nephrology for further evaluation or hematology for IV iron or ESA therapy
- **Metabolic Acidosis:**
  - Bicarbonate goal 22-26 mEq/L
  - <18 mEq/L: refer to nephrology
- **CKD-MBD:**
  - Evaluate calcium, phosphate, 25-OH vitamin D, and iPTH
  - Supplement vitamin D deficiency

Nephrology Referral

- Consistent eGFR <30 (G4/G5) or consistent uACR >300 mg/g (A3) despite therapy
- Consistent uACR >300 (A3) (or uPCR ≥500) with hematuria
- Rapidly progressive loss of kidney function defined as sustained >20% decrease or loss of 5 mL/min/1.73m^2 in eGFR over 1 year or AKI
- Nephrotic albuminuria uACR ≥2000 or uPCR ≥3500
- CKD and HTN refractory to treatment with ≥4 antihypertensive agents
- Persistent hyperkalemia 5-5.5 mEq/L or more, metabolic acidosis, anemia, CKD-MBD (hyperphosphatemia or significant iPTH elevation), and/or malnutrition
- Recurrent or extensive kidney stones
- Hereditary or uncertain cause of CKD
- Urinary red cell casts, RBC >20/high power field, sustained and not readily explained
- >3-5% 5-year risk of requiring KFRT

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Patient Safety (G3a-G5)			
	eGFR <60 (G3a-G5)	**eGFR 30 to <45 (G3b)**	**eGFR <30 (G4-G5)**
Safe medication use	• Consider eGFR in prescription practice for medication initiation, dosing, and discontinuation • Reduce risks of AKI and volume depletion • Annual comprehensive medication review for dosing and other safety concerns • Avoid prolonged NSAIDs	• Use metformin with close monitoring at 50% dose • Adjust DOAC dose based on FDA prescribing guides (preferred over warfarin)	• Avoid NSAIDs, bisphosphonates, and metformin • Continue SGLT-2i until dialysis (if tolerated) • Monitor PT/INR closely if on warfarin (increased bleed risk) • Adjust DOAC dose or avoid depending on FDA prescribing guides
Venous access preservation		• Avoid PICC lines; use single or double lumen central catheters instead (especially in G4/G5)	

CA-AKI prevention		• Iodinated contrast-associated AKI (CA-AKI) prevention
		  • Use low-osmolality and iso-osmolar contrast media
		  • Avoid iodinated contrast or minimize dose
		  • Consider isotonic saline infusion before, during, and after the procedure
		• Withhold nonessential potentially nephrotoxic agents (especially in G4-G5)	

Abbreviations

25-OH Vitamin D, 25-hydroxy vitamin D; **A Stage**, albuminuria category; **ACE-I**, angiotensin-converting-enzyme inhibitor; **AKI**, acute kidney injury; **AKD**, acute kidney disease; **ARB**, angiotensin receptor blocker; **ASCVD**, atherosclerotic cardiovascular disease; **BP**, blood pressure; **CA-AKI**, contrast-associated acute kidney injury; **CCB**, calcium-channel blocker; **CGM**, continuous glucose monitoring; **CKD**, chronic kidney disease; **CKD-MBD**, chronic kidney disease mineral and bone disorder; **CVD**, cardiovascular disease; **DM**, diabetes mellitus; **DOAC**, direct-acting oral anticoagulant; **DRI**, direct renin inhibitor; **DSMES**, diabetes self-management education & support; **eGFR**, estimated glomerular filtration rate; **ESA**, erythropoietin-stimulating agent; **FDA**, Food & Drug Administration; **G Stage**, GFR category; **GLP-1 RA**, glucagon-like peptide 1 receptor agonist; **Hb**, hemoglobin; **HF**, heart failure; **HFpEF**, heart failure with preserved ejection fraction; **HTN**, hypertension; **iPTH**, intact-parathyroid hormone; **KFRT**, kidney failure replacement therapy; **MNT**, medical nutrition therapy; **NS-MRA**, non-steroidal mineralocorticoid receptor antagonist; **NSAIDs**, nonsteroidal anti-inflammatory drugs; **PICC**, peripherally inserted central catheter; **PT/INR**, prothrombin time/international normalized ratio; **RBC**, red blood cells; **SBP**, systolic blood pressure; **SGLT-2i**, sodium-glucose cotransporter-2 inhibitor; **T2DM**, type 2 diabetes mellitus; **TIR**, time in range; **uACR**, urine albumin-creatinine ratio; **uPCR**, urine protein-creatinine ratio.

References

Anemia: *Kidney Int.* 2026;109(1S):S1-S99. **BP:** *Am J Kidney Dis.* 2022;79(3):311-327. & *Kidney Int.* 2021;99(3S):S1-S87. **CKD Management:** *Am J Kidney Dis.* 2025;85(2):135-176. & *Kidney Int.* 2024;105(4S):S117-S314. **CKD-MBD:** *Am J Kidney Dis.* 2017;70(6):737-751. & *Kidney Int,* Suppl. 2017;7(1):1-59. **DM:** *Kidney Int.* 2022;102(5S):S1-S127. & *Diabetes Care.* 2022;45(12):3075-3090. **Iodinated contrast media:** *Kidney Med.* 2020;2(1):85-93 & *Kidney Int.* 2024;105(4S):S117-S314. **Lipid management:** *Am J Kidney Dis.* 2015;65(3):354-366. **Vascular access:** *Am J Kidney Dis.* 2020;75(4 Suppl 2):S1-S16.

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