AAVBC

American Academy
of Value Based Care

Chronic Kidney Disease

Quick Reference Guide

2025

AAVBC Chronic Kidney Disease (CKD) Quick Reference Guide

1. CLINICAL SNAPSHOT

Definition: CKD is defined as abnormalities *of kidney structure or function present for ≥ 3 months with health implications*. Diagnostic criteria include a sustained eGFR < 60 mL/min/1.73 m² or one or more markers of kidney damage such as albuminuria (≥ 30 mg/g), hematuria, histologic abnormalities, or structural findings on imaging[1,2]

ICD-10 Codes: N18.1-2 (stages 1-2), N18.31-32 (stage 3a/3b), N18.4 (stage 4), N18.5 (stage 5), N18.6 (ESRD); E11.22 (type 2 DM with CKD) maps to HCC 37 with RAF 0.166, I12.0 maps to HCC 326 /I12.9 does not map to HCC (hypertensive CKD)²

HCC/RAF V28 Mapping: Code **HCC 329** (CKD Moderate Stage 3a) N18.31 with RAF (0.127) ; **HCC 328** (CKD Moderate Stage 3b) N18.32 with RAF (0.127), **HCC 327** (CKD Stage 4) N18.4 with RAF (0.514), **HCC 326** (CKD Stage 5) N18.5 & N18.6 with RAF (0.815); **HCC 325** (ESRD) N18.6 with RAF (0.817)[3-5]

Prevalence: ~37M or 1 in 7 of US adults have CKD; ~34% of adults ≥65; Awareness is low (~ 40% for stage 3, < 15% for stage 4); Costs increase sharply by stage from ≈ $2,500 per member-year in early CKD to >$90,000 in ESRD patients on dialysis.[6-8]

2. RECOGNITION & DIAGNOSIS

Medicare Screenings (≥65 yr, at-risk population)[1,9-11]

Test	Coverage	Frequency	CPT Code	Guideline Basis / Quality Alignment
eGFR	Covered under preventive/risk-based testing	Annual for at-risk patients ≥65	82565	USPSTF: I (general pop). KDIGO 2024, NKF, CMS MIPS #489, HEDIS KED: annual eGFR in at-risk patients
Urine ACR	Covered if medically necessary (Medicare Part B)	Annual for DM/HTN ; repeat if abnormal	82043 82570	KDIGO 2024, ADA 2024 Standards of Care, NCQA KED metric
Cystatin C (GFR confirmation)	Limited per MAC LCD when creatinine unreliable (e.g., low muscle mass, borderline eGFR)	As needed to confirm CKD or refine GFR category	82610	Limited KDIGO 2024 1.1.3.2
Renal ultrasound	Covered when clinically indicated (suspected structural disease, obstruction, or rapid decline)	Once at diagnosis or as indicated	76770	KDIGO 2024 1.1.5; CMS LCD L38967

Subtle Early Signs in Older Adults >65

- **Nocturia 2-3x/night** → concentrating defect; improves with daytime recumbency[1]
- **Fatigue or 'slowing down'**→ consider CKD even if creatinine looks 'normal' (eGFR 60-90, Cr 0.8-1.3 mg/dl); in older women, Cr ~1.2–1.3 mg/dL can be stage 3[1]
- **Cognitive change** → Uremic encephalopathy starts subtly,~25–30% mild impairment by stage 4[1,12]
- **Poor appetite/metallic taste** → Early uremia, worsens nutrition, easy to miss in elderly
- **Restless legs/Insomnia** → ~20–25% in stage 4–5; ↓ sleep quality[13]
- **Unintentional weight loss/frailty** → consider CKD-related anorexia and catabolic state; screen with eGFR + uACR; consider dietitian referral[1,2]
- **Pruritus or muscle cramps** → uremic symptoms that disrupt sleep and QoL; evaluate electrolytes and uremic burden[1,2]

Geriatric Risk Factors[1,2,9,14,15]

Factor	Risk Signal	Notes
Age ≥65	≈ 34% prevalence	Don't rely on creatinine: calculate eGFR; if eGFRcr 45–59 w/o albuminuria or body habitus is atypical (frailty/sarcopenia), confirm with cystatin C or combined equation (eGFRcr-cys)
Polypharmacy (>5 meds)	High risk via nephrotoxins (e.g., NSAIDs) & drug–drug effects	Review NSAIDs, loop/thiazide dosing, and dehydration risks; document medication reconciliation in MEAT
Social isolation /low support	correlate with worse CKD outcomes	Engage care managers; use teach-back; schedule labs before the patient leaves the visit
Diabetes (long duration)	~1 in 3 adults with diabetes has CKD	Annual eGFR + uACR (NCQA KED quality) and optimize ACE/ARB + SGLT2i per KDIGO. Link diagnosis as E11.22 + N18.x in documentation
HTN uncontrolled	Accelerates CKD progression and CV risk	Aim SBP <120mmHg; intensify diuretics if volume-dependent; document home BP logs
Recurrent AKI /recent contrast	Accelerates CKD progression	Avoid nephrotoxins, optimize hemodynamics, and repeat eGFR in 48–72h when indicated

RED FLAGS - URGENT ACTION[1]

- **Hyperkalemia:** K^+ ≥6.0 mmol/L or any ECG changes (e.g., peaked T waves) → **Immediate ED** care: stabilize membrane (IV calcium), shift K^+ (IV insulin + dextrose; consider nebulized β-agonist), remove K^+ (loop diuretic/kaluresis, potassium binders, or dialysis), and stop K^+-raising meds.
- **Rapid decline in kidney function:** GFR decline >5 mL/min/1.73 m² per year *or* >25% drop within 3 months with G-stage change → **urgent evaluation** for reversible causes (volume depletion, urinary obstruction, NSAIDs/RAASi effect, intercurrent illness) and **nephrology referral**
- **Uremic symptoms:** Encephalopathy/confusion, asterixis, pericarditis/pleuritis, intractable nausea/vomiting, pruritus with malnutrition, refractory bleeding → **urgent nephrology evaluation**
- **Volume overload w/ hypoxemia:** Pulmonary edema or refractory congestion despite diuretics → hospitalize; **IV loop diuretics** and **consider ultrafiltration or dialysis** if diuretic-resistant

Diagnostic Thresholds[1,2,16,17]

Test	CKD Diagnosis	Notes
eGFR	<60 mL/min/1.73 m² ≥3 months	Use CKD-EPI 2021 (race-independent); Confirm chronicity and assess trend
ACR	≥30 mg/g (3 mg/mmol)	First morning void preferred. Repeat abnormal results ≥1–2 weeks later to confirm. Persistent A2–A3 albuminuria defines CKD even with preserved eGFR.
Duration	>3 months of either ↓eGFR or albuminuria	Single value insufficient
Cystatin C	Confirms borderline when eGFRcr 45–59 mL/min/1.73 m² without albuminuria, or when creatinine is unreliable	If eGFR 45-59 without albuminuria

Clues to Dig Deeper[1,14,16]

- **Borderline eGFR (45–59) w/o albuminuria** → **Confirm CKD** with **cystatin C** or **combined eGFRcr-cys** to avoid over/under-staging in frail/sarcopenic elders and to refine risk.
- **Unexplained anemia** (Hgb <10–11 g/dL): Evaluate **iron status (ferritin, TSAT)** and alternate causes. Deficiency in 50%
- **Rising PTH / CKD-MBD labs** → Secondary hyperparathyroidism can begin as early as stage **G3**; check Calcium
- **Apparent resistant HTN** → Common in CKD; check **volume status, adherence, and NSAIDs**; optimize **diuretic strategy** and home BP monitoring; consider **nephrology referral**

Common Oversights[1,3,16]

- Missing stage 1-2 CKD (normal eGFR + albuminuria/structural damage): CKD is present if damage persists ≥3 months → Document evidence and code N18.1/N18.2 with etiology
- Not distinguishing stage G3a (45-59) vs G3b (30-44) → Different management, referral needs, and risk
- Relying on "Normal" creatinine alone in elderly → Always calculate eGFR (CKD-EPI 2021, race-independent) and use cystatin C when creatinine is unreliable
- Diagnosing CKD from a single abnormal value → CKD requires persistence ≥3 months (either decreased eGFR or albuminuria). Recheck and rule out AKI or reversible causes

Key Differentials in Elderly[1,9,14]

Presentation	Differential	Key Tests
Elevated creatinine	AKI vs CKD vs AKI-on-CKD	Compare w/ baseline, review longitudinal labs, obtain renal ultrasound kidney size (<9cm = chronic)
Proteinuria	Diabetic vs non-diabetic	Urine ACR, microscopy, and fundus exam for retinopathy (supports diabetic). If atypical, evaluate for glomerular disease.
Rapid functional decline	Myeloma, obstruction, medication toxicity	SPEP/UPEP, renal ultrasound, medication review (NSAIDS, diuretics, RAASi)
Hematuria (microscopic or gross)	Glomerular vs urologic	Urine microscopy (dysmorphic RBCs); if nonglomerular pattern, refer for urologic imaging/cystoscopy

Comorbidity Screening[1,18,19]

Condition	Approximate Prevalence in CKD	Screening
Diabetes mellitus	≈ 40 % of CKD; leading cause of ESRD	A1c q3-6 mo; pair w/ eGFR + uACR annually (KED metric)
HTN	≈ 85 %; both cause and consequence	Home BP monitoring and in-office BP
CVD	50-60% (2-4x MI/stroke risk)	Annual ECG, lipid panel
Depression	25-30% of stages 3-5	PHQ-9 annually; address adherence, appetite, and fatigue.
Anemia	≈ 50% by stage 4	CBC q3-6 mo starting at stage 3b; evaluate ferritin + TSAT when Hgb < 12 g/dL

Staging/Severity Matrix[1]

GFR Stage	eGFR Range (mL/min/1.73 m²)	Albuminuria (uACR, mg/g)	Action Required
G1	≥90	A1: <30	Annual monitoring; manage CKD risks only if kidney damage is present (e.g., albuminuria, structural/urine sediment abnormalities)[1]
G2	60-89	A2: 30-300	Risk factor control (BP, DM, lipids), ACEi/ARB if albuminuric; repeat eGFR + uACR annually (KED)
G3a	45-59	A2-A3	Monitor q6 mo, consider nephrology referral if A3 or progressive decline
G3b	30-44	Any	Nephrology referral; review meds (avoid nephrotoxins), optimize BP, start SGLT2i where indicated; monitor q3 months
G4	15-29	Any	Kidney failure preparedness: modality education, access planning, transplant evaluation when appropriate; monitor q1–3 months
G5	<15	Any	Kidney failure (CKD G5): evaluate for dialysis/transplant; initiate dialysis based on refractory symptoms/complications, not eGFR alone

3. MEAT DOCUMENTATION ESSENTIALS[1,3,4,9,20,21]

MONITOR: "CKD stage 3b, eGFR 42 mL/min/1.73m² ([date]), declined from 48 [date], representing 12 mL/min/year decline— a 12% decrease over 6 months. ACR 325 mg/g (increased from 280). Home BP log averaging 142/88 on 3 medications. Latest labs: K+ 5.2, Phos 5.8, iPTH 285 pg/mL (3x upper normal)"

EVALUATE: "Renal ultrasound [date]: bilateral kidneys 8.8cm with increased echogenicity, no hydronephrosis, consistent with chronic disease. Anemia evaluation: Hgb 9.2 g/dL, ferritin 85, TSAT 18%, consistent with mixed CKD + iron deficiency. Kidney Failure Risk Equation calculation: 28% 2-year ESRD risk warrants urgent nephrology referral and access planning"

ASSESS: "CKD stage 4 ((eGFR 22 mL/min/1.73 m², confirmed > 3 months)) due to type 2 diabetic nephropathy (E11.22 + N18.4), rapid progression (eGFR declined 15 points in 12 months) despite good glycemic control (A1c 7.2%), likely due to untreated proteinuria (ACR 850 mg/g). Complicated by anemia of CKD (Hgb 9.2 g/dl) (D63.1), secondary hyperparathyroidism (PTH 312 pg/ml), and resistant hypertension requiring 4 agents"
TREAT: "Started dapagliflozin 10mg daily for CKD progression reduction (Phase III DAPA-CKD trial evidence), counseled on initial transient eGFR dip. Add finerenone 10 mg daily targeting 23% progression reduction. Initiated epoetin alfa 4000 units weekly for anemia. Urgent nephrology referral placed for RRT planning given eGFR <25. Dietary referral for protein restriction 0.6–0.8 g/kg/day."

Critical RADV Elements

- **Link causally:** "Diabetic chronic kidney disease" (E11.22) NOT "diabetes and CKD" separately
- **Include current data:** "eGFR 38 on 3/15/24" NOT "CKD" alone
- **Specify stage precisely:** "Stage 3b" (N18.32) NOT "Stage 3 unspecified" (N18.30)
- **Document chronicity:** ">3 months" or show trend with dates

Audit-Proof Tips

Instead of...	Document...
"CKD"	"CKD stage 3b, eGFR 38 mL/min/1.73m² (3/15/24)"
"Stable kidney disease"	"CKD stage 3a, eGFR stable at 52-55 range over 6 months"
"Worsening function"	"Progressive CKD, eGFR declined 8 points (20%) over 12 months"
"Kidney disease due to diabetes"	"Type 2 diabetes with diabetic chronic kidney disease (E11.22)"

4. TREATMENT & REFERRAL QUICK GUIDE[1]

Therapy Escalation Criteria

Trigger	Action	Expected Benefit
ACR ≥30 mg/g	Start or uptitrate ACE/ARB	↓ albuminuria by ~50 %; ↓ risk of kidney and CV events
eGFR 20-90 mL/min/1.73 m²	Add SGLT2i	↓ CKD progression ~30–40 %; ↓ CV death
Diabetic CKD (A2–A3 albuminuria)	Consider finerenone 10–20 mg daily if K^+ < 5.0 and eGFR ≥ 25	↓ kidney failure risk ~23 %; ↓ CV events
eGFR <30	Refer for RRT planning (access + education)	Avoid emergency dialysis starts

KDIGO 2024-Aligned Recommendations[1,9,20,21]

Clinical Scenario	First line	Target/Dose	Alternative
CKD + proteinuria (A2–A3)	ACEi (e.g., lisinopril 20–40 mg daily) or ARB (losartan 50–100 mg daily)	Aim ≥ 50 % reduction in uACR; monitor K^+/creatinine 1–2 wks after start	Any ACE/ARB at max tolerated dose
CKD stages 2-5	SGLT2i (e.g., dapagliflozin 10 mg daily)	Continue unless dialysis initiated; temporary hold if acute illness	Empagliflozin 10mg daily
Diabetic CKD	SGLT2i + finerenone	Add only if K^+ < 5.0 and on ACE/ARB; monitor K^+ q1–4 wk	Optimize ACE/ARB
BP control	Target <130/80 mm Hg (<120/80 if A3 albuminuria and tolerated)	Home monitoring	Individualize frail elderly
Anemia (Hgb <10 g/dL)	IV iron first (ferritin >100, TSAT >20 %)	Re-evaluate Hgb after iron repletion; start ESA if Hgb still <10 and symptomatic	ESA if still <10

Non-Rx Treatment Documentation

"Renal diet education provided: 2g sodium restriction, potassium <2g if K+ >5.0, phosphorus <800mg if elevated, protein 0.8g/kg (0.6g/kg if stage 4-5). Referred to renal dietitian for medical nutrition therapy (Medicare covers 3 hours year 1, 2 hours subsequent years). Daily weight log provided with instruction to call if gain >3 lbs"

When to Refer[1,14,22]

Specialty	URGENT (<2 weeks)	ROUTINE (4-6 weeks)
Nephrology	eGFR decline > 5 mL/min/1.73 m^2 per year or ≥ 25 % in < 3 months; K^+ > 5.5 mmol/L recurrent; new nephrotic-range proteinuria; symptomatic uremia	Stage 4 all, stage 3b with complications
Vascular Surgery	Dialysis complications w/ AV graph (eg. Clot); consult vascular surgeon to restore dialysis access	eGFR < 25 mL/min/1.73 m^2 for AV fistula evaluation or PD catheter planning
Transplant	-	GFR < 20 mL/min/1.73 m^2, or earlier if living donor identified; refer ≥ 12 months before anticipated RRT
Palliative / Supportive Care	Any patient declining dialysis or considering conservative management	Persistent high symptom burden or multiple hospitalizations

Follow-up Timing

- **Stage 1–2 (G1–G2):** Annual if stable, or every 6 months if risk factors uncontrolled.
- **Stage 3a (G3a):** Every 6 months
- **Stage 3b (G3b):** Every 3 months
- **Stage 4 (G4):** Every 1–3 months
- **Stage 5 (G5):** Every 2–4 weeks or per symptom burden (often co-managed with nephrology)

Follow-up can include: labs (BMP, ACR, Hb, Ca/P/PTH), BP log review, med reconciliation, and functional assessment.

Patient Education & Adherence

Though more than 85% of HD is performed in specialized dialysis centers in the United States, home-based HD (HHD) and peritoneal dialysis should be offered to those with advanced CKD, as evidence shows they may be more beneficial for some patients.

Documentation: "Educated on avoiding NSAIDs (ibuprofen, naproxen), limiting contrast exposure, recognizing uremic symptoms (confusion, nausea, metallic taste), hyperkalemia symptoms (weakness, palpitations), and when to seek care (K+ symptoms, volume overload, oliguria). Provided written CKD education materials in the patient's language." Document materials, understanding and adherence plan for RADV support.

Comorbidity Management[1]

eGFR Level (mL/min/1.73 m²)	Medication Adjustments
<45	Review and **reduce metformin** dose (max ≤ 1 g/day) or discontinue if unstable
<30	**Stop metformin.** Avoid gadolinium contrast unless essential. **Dose-adjust cleared** antibiotics (e.g., fluoroquinolones, β-lactams)
<35	Avoid bisphosphonates (↑ risk of adynamic bone, hypocalcemia). Use vitamin D analogs or calcimimetics
<20	Use **caution with digoxin, atenolol, and gabapentin/pregabalin;** reduce dose and extend interval

Cost-Smart Options[23,24]

Brand	Generic/Alternative	Expected Monthly Savings (Approx)
Renvela (sevelamer)	Calcium acetate (if Ca <9.5 mg/dL)	$400
Sensipar (cinacalcet)	Cinacalcet generic	$600
Aranesp (darbepoetin-α)	Epoetin biosimilar	$300
Venofer (IV iron sucrose)	Oral iron (ferrous sulfate, gluconate) if tolerated	$450

Quality Metrics Tie-In[1,4,25,26]

Measure	Target	Impact
Annual eGFR + ACR (diabetes)	>90%	Required for HEDIS - KED; triple-weighted CMS Star measure
ACE/ARB for proteinuria (A2-A3)	>80%	Performance metric for quality bonus; linked to improved renal and CV outcomes.
Blood Pressure < 130/80 mm Hg	>70%	**Contributes to MIPS hypertension control and KDIGO 2021 BP goal compliance**
Nephrology referral (stage G4)	100%	**Prevents unplanned dialysis ("crash starts"); reduces hospitalizations by > 25%**

5. CODING REMINDERS & CASE EXAMPLES BOX[1,4,7,9]

Specificity Requirements

Must specify: Stage (N18.31 vs N18.32 crucial), Etiology (diabetic E11.22, hypertensive I12.9), Current eGFR with date (required for MEAT validation), Complications (anemia D63.1), secondary hyperparathyroidism (N25.81)

Annual Capture

YES—All CKD codes require annual face-to-face (video telehealth counts) with MEAT by 12/31; V28 RAF: Stage 3=0.127, 4=0.514, ESRD=0.815

Common Denials & Fixes

Denial	Fix
"CKD" nonspecific	→ "CKD stage 3b, eGFR 38 mL/min/1.73m² (3/15/24), due to diabetic nephropathy (E11.22)"
Missing chronicity (single lab)	→ "CKD confirmed > 3 months — eGFR 42 currently, was 48 six months ago; persistent decline documented"
No supporting evidence	→ Add labs (eGFR, ACR), imaging (renal ultrasound), and serial trend data in note or attach reports.
Unspecified stage 3	→ Always specify G3a (45–59) vs G3b (30–44) → N18.31 or N18.32

EHR Tips

- **.CKDSTAGE** auto-calculates from latest eGFR
- **Alert:** No eGFR in 6 months
- **Best practice advisory:** flags **SGLT2i initiation opportunity** if eGFR 20–90
- **KFRE calculator** embedded for referral timing
- **Auto-prompt** for "etiology + stage" when adding CKD to problem list (reduces unspecified N18.30 coding).

Brief Case Examples

SUCCESS: "72yo with type 2 diabetic CKD stage 3b (E11.22 + N18.32), eGFR 42 [date], ACR 485mg/g, on lisinopril 40mg + dapagliflozin 10mg → Captures HCC 37 (0.166) + HCC 328 (0.127) + RAF = 0.293; $3,048/year (based on $10,402.34 MA rate)

PITFALL: "CKD" without stage/eGFR/etiology → Audit fail, loses 0.237 RAF ($2,465/year)
FIX: "CKD stage 3a due to hypertensive nephrosclerosis (I12.9 + N18.31), eGFR 52 mL/min/1.73m² (3/15/24), slowly progressive at 2 mL/min/year decline"

QUICK REFERENCE TABLES

CKD Stages at a Glance

Stage	eGFR	Key Actions	Monitoring
G1	≥90*	Risk reduction	Annual
G2	60-89*	Control BP/DM	Annual
G3a	45-59	Add SGLT2i	q6 months
G3b	30-44	Refer nephrology	q3 months
G4	15-29	RRT planning	q1-3 months
G5	<15	Dialysis/transplant	q2-4 weeks

*Requires evidence of kidney damage

Lab Monitoring Schedule

Test	Stage 3a	Stage 3b	Stage 4	Stage 5
eGFR/Cr	6 months	3 months	1-3 months	Monthly
Potassium	6 months	3 months	Monthly	Per dialysis
PTH/Ca/Phos	Annual	6 months	3 months	Monthly
Hgb	Annual	6 months	3 months	Monthly

Medication Dosing Quick Guide

Drug	CrCl 30-59	CrCl 15-29	CrCl <15
Metformin	Max 1000mg BID	Avoid	Avoid
Gabapentin	200-700mg TID	200-700mg daily	100-300mg daily
Atenolol	No change	50% dose	50% dose
Most antibiotics	Adjust	Adjust	Adjust

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