Chronic Kidney Disease Screening and Diagnosis

1 Major Risk Factors for CKD: Identifying High-Risk Individuals[1,2]

Main clinical risk factors for CKD:

Hypertension | Diabetes | CVD | Obesity

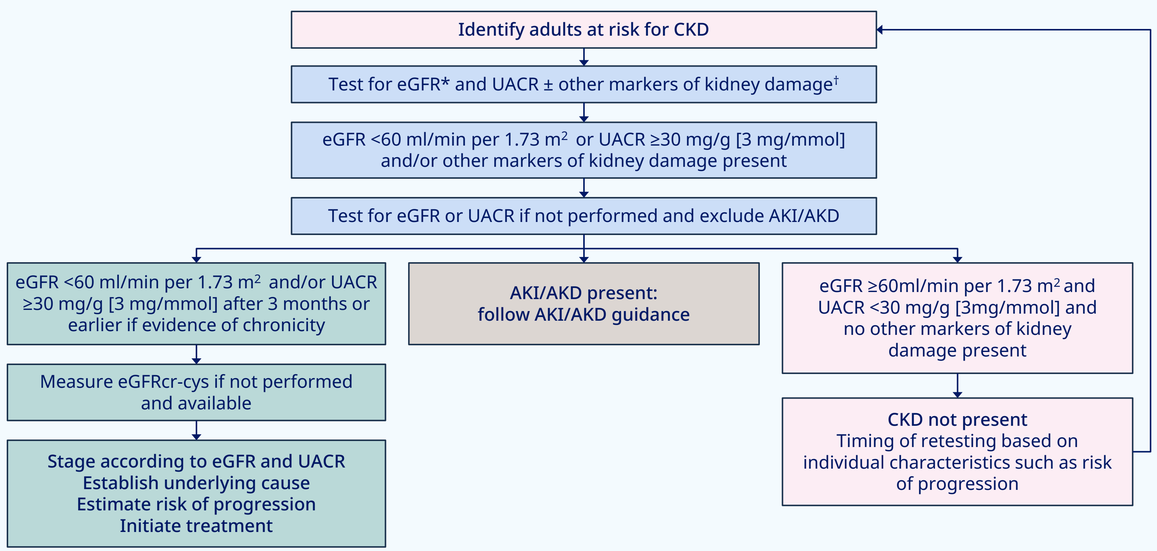
Other factors to be considered:

- Autoimmune diseases and systemic infections
- Nephrotoxic medications
- Genetic risk factors
- Sociodemographics (age, ethnicity, income)
- History of acute kidney injury (AKI)
- Smoking

2 Screening Algorithm for Diagnosis and Staging of CKD in Adults[3]

ADA/KDIGO Consensus Statement 2022[4]:

- Screening includes measurement of both urine albumin, e.g., spot urine albumin-to-creatinine ratio (UACR) and estimated glomerular filtration rate (eGFR)
- CKD screening is recommended yearly starting at T2D diagnosis
- For T1D, screening is recommended starting 5 years after diagnosis



3 Risk Stratification and Management of CKD[4]

Goals of Stratification:

- Assess risk of CKD progression
- Evaluate cardiovascular disease risk and estimate mortality risk
- Determine frequency of screening based on eGFR and albuminuria (ACR)

CKD is classified based on: • eGFR • Albuminuria (ACR)			Albuminuria categories Description and range		
			A1	A2	A3
			Normal to mildly increased	Moderately increased	Severely increased
			<30 mg/g <3 mg/mmol	30-299 mg/g 3-29 mg/mmol	≥300 mg/g ≥30 mg/mmol
eGFR categories (mL/min/1.73 m²) Description and range	G1	≥90	Low risk	Moderately increased risk	High risk
	G2	60-89	Low risk	Moderately increased risk	High risk
	G3a	45-59	Moderately increased risk	High risk	Very high risk
	G3b	30-44	High risk	Very high risk	Very high risk
	G4	15-29	Very high risk	Very high risk	Very high risk
	G5	<15	Very high risk	Very high risk	Very high risk

Low risk
1 screening/year

Moderately increased risk
At least 1 screening/year

High risk
At least 2 screenings/year
Refer to a nephrologist*

Very high risk
At least 3 screenings/year | At least 4 screenings/year (every 1-3 months)
Refer to a nephrologist*

* When eGFR < 30 mL/min/1.73 m²) and UACR ≥ 300 mg/g

4 Nephrology Referral[4,5]

Consider referral to a nephrologist in the following clinical scenarios:

- **Declining Kidney Function**: When eGFR persistently declines or drops below 30 mL/min/1.73 m²
- **Rising Albuminuria**: When UACR continuously rises or UACR is persistently ≥ 300 mg/g
- **Uncertain Cause**: When the underlying cause of CKD is unknown or hereditary kidney disease is suspected
- **Management Challenges**: For complications such as resistant hypertension, persistent electrolyte imbalances, anemia, or metabolic bone disease

†Markers of kidney damage other than albuminuria may also be used to diagnose CKD, but albumin-to-creatinine ratio (ACR) and GFR are still required to determine stage and estimate risk of progression. Acute kidney disease (AKD) is defined by the abnormalities of kidney function and/or structure with implications for health and with a duration of ≤3 months. The pink boxes indicate actions in people at risk for CKD and in whom testing should be performed. The blue boxes indicate testing steps. The green boxes indicate the identification of CKD and its stages and the initiation of treatment. The brown box indicates the identification of AKD/acute kidney injury (AKI). Please also see the Kidney Disease: Improving Global Outcomes (KDIGO) Clinical Practice Guideline for Acute Kidney Injury
ACR, albumin-to-creatinine ratio; AKI, acute kidney injury; ASCVD, Atherosclerotic cardiovascular disease; CKD, chronic kidney disease; CVD, cardiovascular disease, eGFR, estimated glomerular filtration; eGFRcr-cys, creatinine- and cystatin C- based eGFR; GLP-1 RA, glycogen-like peptide-1 receptor agonist; HF, heart failure; KDIGO, kidney disease: improving global outcomes; MRA, mineralocorticoid receptor agonist; RAS, renin-angiotensin system SGLT2, Sodium-Glucose Cotransporter 2; T1D, type 1 diabetes; T2D, type 2 diabetes; UACR, urine albumin-to-creatinine ratio

1. NIH. NIDDK. USRDS. 2024 Annual Data Report: Chronic Kidney Disease. Figure 1.1: see tabs for: Hypertension; Diabetes; Obesity; and Cardiovascular disease. https://usrds-adr.niddk.nih.gov/2024/chronic-kidney-disease/1-ckd-in-the-general-population; 2. Chen TK et al. JAMA. 2019;322(13):1294-1304; 3. KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. Kidney Int. 2024;105(4S):S117-S314; 4. Adapted from de Boer et al Diabetes Care 2022;45:3075–3090; https://doi.org/10.2337/dci22-0027; 5. Diabetes Care 2025;48(Supplement_1):S239–S251