MQIC

Michigan Quality Improvement Consortium Guideline

Diagnosis and Management of Adults with Chronic Kidney Disease

The following guideline recommends diagnosis and aggressive management of chronic kidney disease by clinical stage.

Eligible Population	Key Components	Recommendation and Level of Evidence
All adults at increased risk for CKD	Screening	For patients at increased risk for CKD (e.g., diabetes mellitus, prediabetes, hypertension, family history of kidney disease, older age ≥ 60, history of acute kidney injury, obesity) assess for markers of kidney damage: Measure blood pressure **[A]** at least annually. Serum creatinine (for estimated glomerular filtration rate [eGFR]), and urine albumin-to-creatinine ratio (uACR) **[A]** or Kidney Profile annually.
	Testing for diagnosis and staging	Assess for markers of kidney damage, including the following: Spot urine for uACR to detect albuminuria. Serum creatinine for eGFR to trend over a 3-month period (if < 60 ml/min/1.73m^2, and no prior eGFR, repeat within 90 days to establish trend). If eGFR < 60 ml/min/1.73m^2, obtain renal ultrasound. Fasting lipid profile, CBC, glucose, electrolytes, BUN; review prior lab results.
	Risk Factor Management & Patient Education	At each routine health exam: Optimize management of comorbid conditions (e.g., diabetes mellitus [A1C], hypertension [≤ 130/80, if tolerated], urinary tract obstruction, cardiovascular disease)[1,2]. Educate on therapeutic lifestyle changes: weight maintenance if BMI < 25, weight loss if BMI ≥ 25, exercise and physical activity, moderation of alcohol intake, smoking cessation, nutrition counseling with focus on sodium restriction. For adults with hypertension or prehypertension, adequate sodium intake is <1500 mg/d, but aim for at least 1000 mg/d reduction from baseline.
Adults with CKD	Core Principles of Treatment **[D]**	Intensive management of risk factors. Inform patient of serious progressive nature of CKD and its risks. Review medications for polypharmacy, dose adjustment, drug interactions, adverse effects, and therapeutic levels. Modify dosage for medications excreted by the kidneys, e.g., Metformin, antibiotics. Avoid NSAIDs if CKD Stage 3, 4 or 5, or albuminuria. Update vaccines: HBV series, influenza, Tdap, and Pneumococcal Conjugate (Prevnar®) and Pneumococcal Polysaccharide (Pneumovax®), Shingles (Shingrix®) Salt restriction for patients with CKD and hypertension or prehypertension (<1500 mg/d or decrease by 1000 mg/d). Incorporate self-management behaviors into treatment plan at all stages of CKD. **[B]** Develop clinical plan based on disease stage. **[B]** Stage 1 (eGFR ≥ 90): monitor eGFR and albuminuria. Cardiovascular risk modification, including statins, ACE or ARB, and aspirin. Blood pressure target ≤130/80 as tolerated.
	Clinical plan based on CKD stage and albuminuria	**Stage 1 (GFR ≥ 90):** Monitor eGFR and persistent albuminuria at least annually based on risk, smoking status, consider ACE or ARB therapy. Nephrology referral if albuminuria >300 mg/g creatinine on spot uACR ratio (30 mg/dl on dipstick). **Stage 2 (GFR 60-89):** Consider nephrology referral if eGFR decline is > 5 mL/min/yr, or if albuminuria. **Stage 3a (GFR 45-59):** Nephrology referral if eGFR decline is 5 mL/min/yr, if anemic or abnormal PTH, Vit D, Ca, or phosphorus. Low-dose ASA allowed. Avoid contrast (iodinated and gadolinium-based). Avoid NSAIDs. **Stage 3b (GFR 30-44):** Nephrology referral. Avoid contrast. Avoid NSAIDs. **Stage 4 (GFR 15-29):** Nephrology co-management; consider case management if available. CKD education and discussion of choices and options, dialysis access, advance care planning. Referral for transplant evaluation. Avoid contrast. Avoid NSAIDs. **Stage 5 (GFR < 15):** Nephrology co-management. Renal replacement therapy when needed. Avoid contrast. Avoid NSAIDs.

[1]Reference MQIC guidelines on diabetes, hypertension, lipids, and obesity

[2]Reference University of Michigan Health System Clinical Care Guidelines on diabetes, hypertension, lipids, and obesity

Levels of Evidence for the most significant recommendations: A = randomized controlled trials; B = controlled trials, no randomization; C = observational studies; D = opinion of expert panel

This guideline lists core management steps. It is based on Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group 2012. KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. Kidney inter., Suppl. 2013; 3: 1-150. Screening for, Monitoring, and Treatment of Chronic Kidney Disease Stages 1 to 3: A Systematic Review for the U.S. Preventive Services Task Force and for an American College of Physicians Clinical Practice Guideline. *Ann Intern Med* . 2012;156:570-581. Individual patient considerations and advances in medical science may supersede or modify these recommendations.