



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, hypertension, family history of kidney disease, older age, obesity, metabolic syndrome, history of acute kidney injury) assess for markers of kidney damage: Measure blood pressure [A] at least two times/year. Creatinine (for GFR), electrolytes, BUN, urinalysis, and urine dipstick for albumin, annually.
	Testing for diagnosis and staging	Assess for markers of kidney damage: Spot urine for albumin-to-creatinine ratio (ACR) to detect micro- or macroalbuminuria. Serum creatinine for estimated glomerular filtration rate (eGFR) to trend over a 3-month period (if < 60 ml/min/1.73m ² , and no prior GFR, repeat within 90 days to establish trend). If GFR < 60 ml/min/1.73m ² , obtain renal ultrasound. Fasting lipid profile, CBC, glucose; 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, nutrition therapy, moderation of alcohol intake, smoking cessation.
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 dose adjustment, drug interactions, adverse effects, and therapeutic levels. Modify dosage for renal cleared medications, e.g. Metformin, antibiotics. Avoid NSAIDs if CKD Stage 3, 4 or 5, or micro- or macroalbuminuria. Update vaccines: HBV, influenza, Tdap, and Pneumococcal Conjugate (Pneumovax®) and Pneumococcal Polysaccharide (Pneumovax®) Salt restriction for patients with CKD and hypertension (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] .
	Clinical plan based on CKD stage and albuminuria	Stage 1 (GFR ≥ 90): Monitor GFR and microalbuminuria at least annually based on risk, smoking cessation, consider ACE and/or ARB therapy. Nephrology referral if macroalbuminuria - 300 mg/g creatinine on spot ACR ratio (30 mg/dl on dipstick). Stage 2 (GFR 60-89): Consider nephrology referral if GFR decline > 5 mL/min/yr, or if macroalbuminuria. Stage 3a (GFR 45-59): Nephrology referral if anemic or abnormal PTH, VitD, Ca, or phosphorus. Avoid contrast, if possible. Avoid NSAIDs. Low-dose ASA allowed. Avoid contrast (iodinated and gadolinium-based) in Stage 3, 4, or 5. Stage 3b (GFR 30-44): Nephrology referral. 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. Stage 5 (GFR < 15): Renal replacement therapy when needed.

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

²Reference 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.

Approved by MQIC Medical Directors November 2008, 2010, 2012, 2014 (rev. May 2013), 2016, 2018, 2020

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