


2019 VA/DoD Clinical Practice Guideline

Management of Chronic Kidney Disease (CKD) Recommendations

The following recommendations were made using a systematic approach per the Grading of Recommendations Assessment, Development and Evaluation (GRADE) as detailed in the CKD Clinical Practice Guideline. These domains include confidence in the quality of the evidence, balance of desirable and undesirable outcomes (i.e., benefits and harms), patient or provider values and preferences, and other implications, as appropriate (e.g., resource use, equity, acceptability).

Topic	#	Recommendation
Diagnosis Assessment and Lab Monitoring	1.	In the general population, there is insufficient evidence to recommend for or against periodic evaluation for chronic kidney disease.
	2.	When screening or stratifying risk for chronic kidney disease, we recommend including urine albumin-to-creatinine ratio testing in addition to estimated glomerular filtration rate to optimize the diagnosis and staging of chronic kidney disease.
	3.	In patients with an estimated glomerular filtration rate <60 mL/ minute/1.73 m^2, we suggest one-time cystatin C-based estimated glomerular filtration to confirm diagnosis and/or refine staging of chronic kidney disease.
	4.	We suggest the use of a validated risk prediction model as a clinical decision support aid in the management of patients with chronic kidney disease.
	5.	When assessing the risk of progression to end-stage renal disease, there is insufficient evidence to recommend a specific risk prediction calculator.

Topic	Sub-topic	#	Recommendation
General Management Strategies	Team Management and Education	6.	There is currently insufficient evidence to recommend a specific threshold of risk, renal function, or proteinuria to refer patients for a nephrology evaluation and management of chronic kidney disease (see Algorithm: Module C, Sidebar 8 for potential indications for nephrology consultation).
		7.	We suggest interdisciplinary care (including dietitians, pharmacists, and social workers in addition to physicians and nurses) for patients with later-stage chronic kidney disease.
		8.	When providing patient education, there is insufficient evidence to recommend for or against a particular health education program, mode, or modality to prevent chronic kidney disease progression.
		9.	For patients who are at high risk for requiring hemodialysis/renal-replacement and need long-term venous access, we suggest against peripherally inserted central catheter (PICC) lines to optimize future dialysis vascular access options, while considering patient values and preferences.
	Indication for Referral to Nephrology for Renal Replacement Therapy	10.	We suggest utilizing shared decision making regarding renal replacement therapy (versus conservative management) in part to improve patient satisfaction.
		11.	In patients with high comorbidities/low functional status approaching the need for renal replacement therapy and for whom prolongation of life is the priority, we suggest evaluation for renal replacement therapy with sufficient time for comprehensive preparation.
		12.	In patients with high comorbidities/low functional status approaching the need for renal replacement therapy and for whom avoiding hospitalization, death in hospitals, or intensive procedures is the priority, we suggest offering conservative management over dialysis.
		13.	In patients with high comorbidities/low functional status approaching the need for renal replacement therapy and for whom prolongation of life may not be the priority, there is insufficient evidence to recommend for or against dialysis to improve quality of life.
Non-pharmacological Mgmt of CKD	Nutrition	14.	We suggest the use of dietary sodium restriction as a self- management strategy to reduce proteinuria and improve blood pressure control in patients with chronic kidney disease.
		15.	In selected patients with stage 3 and 4 chronic kidney disease, we suggest offering a dietary protein intake of 0.6 to 0.8 g/kg/day as it may slow the decline in estimated glomerular filtration rate and progression to end-stage renal disease.

Topic	Sub-topic	#	Recommendation
Pharmacologic Management of CKD and Associated Conditions	Diabetes Medications	16.	We suggest offering metformin as a first-line therapy for the treatment of type 2 diabetes in patients with stage 1 to 3 chronic kidney disease to reduce all-cause mortality.
		17.	We recommend offering sodium-glucose co-transporter 2 inhibitors as an option for add-on therapy for the treatment of type 2 diabetes in patients with stage 1 to 3 chronic kidney disease to reduce chronic kidney disease progression and the risk of cardiovascular events.
		18.	We suggest offering liraglutide or dulaglutide (glucagon-like peptide-1 receptor agonists) as an option for add-on therapy for the treatment of type 2 diabetes in patients with chronic kidney disease to reduce chronic kidney disease progression.
		19.	In patients with chronic kidney disease and type 2 diabetes, there is insufficient evidence to recommend for or against the use of thiazolidinediones or dipeptidyl peptidase-4 inhibitors to decrease progression of chronic kidney disease or mortality.
	Hypertension Medications	20.	We suggest intensive blood pressure management (insufficient evidence to recommend a specific target) beyond a target of less than 140/90 mmHg, to reduce mortality in patients with estimated glomerular filtration rate below 60 mL/minute/1.73 m^2.
		21.	In patients with non-diabetic chronic kidney disease, hypertension, and albuminuria, we recommend the use of an angiotensin-converting enzyme inhibitor to prevent progression of chronic kidney disease. Angiotensin II receptor blockers may be substituted for patients with an angiotensin-converting enzyme-inhibitor-induced cough.
		22.	In patients with chronic kidney disease, diabetes, hypertension, and albuminuria, we recommend the use of an angiotensin-converting enzyme inhibitor or angiotensin II receptor blockers to slow the progression of chronic kidney disease, unless there is documentation of intolerance.
		23.	We recommend against the use of combination renin-angiotensin-aldosterone system blockade (an angiotensin-converting enzyme inhibitor and angiotensin II receptor blocker, or an angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker with a direct renin inhibitor) in patients with chronic kidney disease.
	Anemia Medications	24.	We suggest initiation of oral iron therapy to support iron requirements in patients with chronic kidney disease.
		25.	We recommend against initiating erythropoiesis-stimulating agents in patients with chronic kidney disease for the purpose of achieving a hemoglobin target above 11.5 g/dL due to increased risk of stroke and hypertension.
		26.	We recommend against initiating erythropoiesis-stimulating agents at a hemoglobin level greater than 10 g/dL.

Topic	Sub-topic	#	Recommendation
Pharmacologic Management of CKD and Associated Conditions	Bone Health Medications	27.	We suggest against offering calcitriol or active vitamin D analogs to patients with stage 3 and 4 chronic kidney disease and elevated parathyroid hormone levels.
		28.	We suggest against offering calcimimetics to patients with stage 3 and 4 chronic kidney disease and elevated parathyroid hormone levels.
		29.	There is insufficient evidence to recommend for or against the use of phosphate binders to reduce mortality, progression of chronic kidney disease, or major cardiovascular outcomes in patients with stage 2 to 5 chronic kidney disease.
	Other Medications to Slow CKD	30.	We suggest the use of bicarbonate supplementation in chronic kidney disease patients with metabolic acidosis to slow the progression of chronic kidney disease.
		31.	In patients with chronic kidney disease and asymptomatic hyperuricemia, there is insufficient evidence to recommend for or against the use of urate-lowering therapy for the purpose of slowing progression of chronic kidney disease.
		32.	In patients at risk for rapidly progressing autosomal dominant polycystic kidney disease, we suggest offering tolvaptan in consultation with a nephrologist to slow decline in estimated glomerular filtration rate.
Contrast-Associated Kidney Injury Management		33.	For patients at increased risk for iodinated contrast-associated acute kidney injury, we recommend volume expansion with intravenous isotonic saline prior to and following iodinated contrast administration (see Algorithm Module D for additional information).
		34.	We recommend against the administration of N-acetylcysteine for prevention of iodinated contrast-associated acute kidney injury.
		35.	We recommend against the use of renal replacement therapy for iodinated contrast-associated acute kidney injury prophylaxis.

For information on the grading method used for these recommendations, refer to the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) as detailed in the Methods section and Appendix A in the 2019 VA/DoD Clinical Practice Guideline for the Management of Chronic Kidney Disease (CKD) or the CKD Provider Summary at: https://www.qmo.amedd.army.mil or http://www.healthquality.va.gov