



## Clinical Care Guidelines for: Chronic Kidney Disease

### OBJECTIVE

Guide the appropriate diagnosis and management of Chronic Kidney Disease

### GUIDELINE

MDwise supports chronic kidney disease management recommendations from the National Kidney Foundation

National Kidney Foundation. [K/DOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification and Stratification](#). Am J Kidney Dis 39:SI-S266, 2002 (suppl 1)

Guidelines are included in the MDwise Provider Manual and posted on the MDwise Web site. They are available individually as requested.

### DIAGNOSIS AND STAGING

**DIAGNOSIS:** (1) CKD defined as either kidney damage or GFR <60 mL/min/1.73m<sup>2</sup> for ≥ 3 months; kidney damage refers to pathological abnormalities or markers of damage, including lab abnormalities (2) definitive diagnosis: biopsy or imaging studies; usually only needed if not well-defined clinical presentation and minimal identified causal factors (3) factors that may guide diagnosis include: symptoms during urination, infections, diabetes, heart failure, cirrhosis, hypertension, other disease states, family history of kidney disease

FIVE STAGES OF CKD:

**Stage 1:** (1) kidney damage with normal OR increased GFR (2) GFR ≥ 90 mL/min/1.73m<sup>2</sup> (3) diagnosis, slowing progression, treatment of comorbid conditions (4) clinical presentation: markers of damage such as nephritic syndrome, tubular syndromes, and urinary tract syndromes

**Stage 2:** (1) kidney damage with mild decrease in GFR (2) GFR 60-89 mL/min/1.73m<sup>2</sup> (3) evaluating extent of progression (4) clinical presentation: mild complications

**Stage 3:** (1) moderate decrease in GFR (2) GFR 30-59 mL/min/1.73m<sup>2</sup> (3) treating complications (4) clinical presentation: moderate complications

**Stage 4:** (1) severe decrease in GFR (2) GFR 15-29 mL/min/1.73m<sup>2</sup> (3) preparation for kidney replacement therapy (4) clinical presentation: severe complications

**Stage 5:** (1) kidney failure (2) GFR <15 mL/min/1.73m<sup>2</sup> (or dialysis) (3) kidney replacement therapy if uremia present (4) clinical presentation: uremia, cardiovascular disease

**LAB EVALUATION:** (1) proteinuria: untimed (“spot”) urine samples/first morning specimens preferred (2) urine sediment examination or dipstick for red blood cells and white blood cells (3) imaging studies (4) blood pressure (5) serum creatinine to estimate GFR (6) serum electrolytes (sodium, potassium chloride, bicarbonate)

REFER TO NEPHROLOGIST IF GFR <30 ML/MIN/1.73 m<sup>2</sup> AND/OR IF UNABLE TO PREPARE/PERFORM THE FOLLOWING: (1) clinical action plan (2) evaluation of patient (3) recommended treatment

Stage	Description	Risk Factors																	
		Lack of Awareness	Proteinuria	Hypertension	Dyslipidemia	Hyperglycemia	Anemia	Nutritional Factors	Thrombogenic Factors	Oxidative Stress	Elevated Homocysteine	Menopause	Smoking	Infection/Inflammation	Other Uremic Toxins	Depression/ Poor Mental Health	Poor Physical Functioning	Vocational Disability	Poor Social Functioning
	At increased risk																		
1	Kidney damage with normal or ↑ GFR																		
2	Kidney damage with mild ↓ GFR																		
3	Moderate ↓ GFR																		
4	Severe ↓ GFR																		
5	Kidney Failure																		

KDOQI Guidelines

## TREATMENT GENERAL APPROACH

### APPROACH BASED ON SLOWING PROGRESSION OF KIDNEY DISEASE

	Strict Glycemic Control	ACEIs or ARBs	Strict BP Control	Dietary Protein Restriction
Diabetic Kidney Disease	✓	✓ -BP control = decreased development of microalbuminuria in Type 2 DM -ACEIs and ARBs slow progression of CKD	✓ <125/<75 mmHg	?
Nondiabetic Kidney Disease	N/A	✓	✓ <130/<85mmHg <125/<75 mmHg if proteinuria	?
Kidney Disease in Transplant	?	?	?	?

KDOQI Guidelines

## TREATMENT AND PREVENTION

Treatment is based on diagnosis, comorbidities, slowing loss of renal function, prevention and treatment of complications and cardiovascular disease, preparation for renal replacement therapy if appropriate, and assessing if signs and symptoms of uremia are present to determine the need for dialysis and transplantation.

Blood Pressure	-Treat according to established guidelines with appropriate pharmacologic therapy -Need specified target levels -Nonpharmacologic therapy -Elevated blood pressure associated with worse outcomes for CKD patients and strict BP control decreases progression of CKD
GFR <60 mL/min/1.73m <sup>2</sup>	-Evaluate and treat for complications of decreased GFR such as (1) anemia (2) malnutrition (3) bone disease and disorders of calcium and phosphorus metabolism (4) activities of daily living -Estimated GFR should be monitored
Diabetes Mellitus	-If diabetic kidney disease, monitor for diabetic complications such as retinopathy, cardiovascular disease, neuropathy -Evaluate and manage according to established guidelines -Strict glycemic control shown to decrease progression of CKD
Renal Replacement Therapy	-Initiate preparation for renal replacement therapy (dialysis and transplantation), as well as vascular access care, when GFR <30 mL/min
Anemia	-There is limited evidence for partial correction of anemia with recombinant human erythropoietin and/or iron in order to decrease rate of progression of CKD
Monitoring	-Blood pressure monitoring in <u>all</u> CKD patients -GFR/Serum creatinine at least yearly -Monitoring proteinuria should be done via quantitative means i.e. protein-to-creatinine ratio or albumin-to-creatinine ratio -Two or more positive quantitative tests spaced by one to two weeks = persistent proteinuria and need for further evaluation and management for CKD

## CARE GAPS

### MDwise caregaps; The following services should be considered in the care of all patients with chronic kidney disease:

- Visit to nephrologist at least once annually ICD-9:404.xx (KDOQI-for moderate and high risk members)
- Serum creatinine to GFR at least twice per year (KDOQI-for those moderate or high risk, i.e. Stage 3 or higher)
- Visit to dietician (consult) at least once annually (KDOQI-for those moderate or high risk members)
- Protein-to-creatinine ratio or albumin-to-creatinine ratio (KDOQI)
- Hemoglobin (Hgb) at least annually (KDOQI)
- Pneumococcal polysaccharide vaccine: CPT-90732 (ACIP)
- Annual influenza vaccination: CPTs-90655,90656,90657,90658, 90660 (CDC)
- ACE-I or ARB (KDOQI)
- Dyslipidemia treated with statin or fibric acid derivative (e.g. gemfibrozil, fenofibrate) (KDOQI)
- Assessment for anemia therapy (transfusions, EPOGEN, PROCIT, iron supplements oral or intravenous (iron dextran, sodium ferric gluconate, and iron sucrose) (KDOQI)

## REFERENCES

National Kidney Foundation. [K/DOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification and Stratification](#). Am J Kidney Dis 39:S1-S266, 2002 (suppl 1)

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