

CKD Assessment Algorithm

Identification, Treatment, and Referral

Patient Office Visit

Is patient at risk for CKD?

Susceptibility

- Age > 60 years
- Family history of CKD

Direct Risk Factors

- Diabetes
- High blood pressure
- Autoimmune diseases
- Lower urine tract obstruction
- Hx acute renal failure
- Systemic infections
- Urinary tract infection
- Urinary stones
- Drug toxicity
- Exposure drugs/contrast

Progressive Risk Factors

- High levels proteinuria
- Malignant hypertension
- Poor glycemic control
- Smoking

No

STOP

Yes

Perform routine screening for CKD for patients at increased risk

- Serum creatinine to determine estimated eGFR
- Assessment of proteinuria
- Urinalysis for presence of white & red blood cells

Does patient have abnormal eGFR > 3 months?

Yes

No

Does patient have urinary albumin-creatinine (ACR) ratio > 30 mg/g?

No

Yes

Determine Stage of CKD

Stage 1 - 2

eGFR \geq 60
ACR > 30 mg/g x 2

Stage 3

eGFR 30-59

Stage 4

eGFR 15-29

Stage 5

eGFR < 15

Follow Up CKD Monitoring

- Test patients at risk for CKD annually
- Counsel patients at risk for CKD but found not to have CKD to reduce risk factors when possible

Collaborate with nephrologist to develop action plan to include:

- Evaluate and manage comorbid conditions (Primary care, all stages)
- Slow the loss of kidney function (Co-management, all stages)
- Prevent & treat cardiovascular disease (Primary care, all stages)
- Prepare for kidney failure and replacement therapy (Nephrology, stage 4)
- Spare non-dominant arm above wrist from venipuncture and IV catheters (Co-management, all stages)
- Avoid subclavian central lines and PICC lines if eGFR < 45 (Co-management, stage 3-5)
- Consider vascular surgery consultation for "fistula only" if eGFR < 30 (Nephrology, stage 4-5)
- Replace kidney function (Nephrology, stage 5)

Consult nephrologist if action plan cannot be performed or carried out or eGFR < 60

Identify risks associated with CKD

- Evaluate etiology of kidney disease
- Evaluate complications of kidney disease: anemia, hypertension, malnutrition, bone disease, metabolic acidosis, congestive heart failure, hyperkalemia, edema determined to fluid overload, neuropathy
- Evaluate risk for loss of kidney function
- Evaluate comorbid conditions
- Evaluate risk for cardiovascular disease

Assess barriers to treatment adherence

- Family and social support
- Depression
- Income & unemployment concerns
- Stress and coping mechanisms
- Perceptions of illness & treatment
- Limited access to medications and/or care

Review medication usage at follow-up visits

- Evaluate for necessary dose adjustments based on level of kidney function
- Evaluate for adverse effects of medications on kidney function (NSAIDs, IV contrast)
- Evaluate for drug interactions
- Counsel patient to avoid nephrotoxic drugs and IV contrast
- Evaluate appropriateness for ARB/ACE inhibitor with diagnosis of HTN/diabetes
- Evaluate need for therapeutic drug monitoring

Monitor CKD Progression

Does patient have eGFR < 60 for > 3 months or proteinuria > 3 gm?

No

Yes

Consult/Refer to Nephrologist

- Consult nephrologist at Stage 1 if hematuria or significant proteinuria present
- Consult nephrologist at Stage 2 if eGFR declines > 4mL/min/yr
- Consult nephrologist at Stage 3 for all patients with CKD
- Refer patient to nephrologist for evaluation when eGFR < 30 mL/min/1.73²