

# 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/procedures

### 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 GFR
- Assessment of proteinuria
- Urinalysis for presence of white & red blood cells

Yes

Does patient have abnormal GFR > 3 months?

No

Does patient have protein to creatinine ratio > 1.0 gm?

No

Determine Stage of CKD

Stage 1

GFR > 90  
P:C > 1.0 x 2

Stage 2

GFR 60-89

Stage 3

GFR 30-59

Stage 4

GFR 15-29

Stage 5

GFR < 15

Yes

## 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

## Begin CKD Treatment: Develop Clinical Action Plan

### 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)
- Prevent & treat complications of decreased kidney function (Co-management, all stages)
  - Prepare for kidney failure and replacement therapy (Nephrology, stage 4)
  - Replace kidney function (Nephrology, stage 5)

Consult nephrology if action plan cannot be performed or carried out or when GFR < 60

## Identify risks associated with CKD

- Evaluate type 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 hypertension
  - Evaluate need for therapeutic drug monitoring

## Consult/Refer to Nephrologist

- Consult nephrologist at Stage 1 if hematuria or significant proteinuria present
- Consult nephrologist at Stage 2 if GFR declines > 4mL/min/yr
- Consult nephrologist at Stage 3 for all patients with CKD
- Refer patient to nephrologist for evaluation when GFR < 30 mL/min/1.73<sup>2</sup>

Monitor CKD Progression

No

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

Yes

# CKD Treatment Algorithm

