Clinical Practice Guidelines
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
(suppl 1) KDOQI Clinical Practice Guideline for Diabetes and CKD: 2012 Update
Guidelines are included in the MDwise Provider Manual and posted on the MDwise Web site. They are available individually as requested.

Diagnosis and Staging
Asthma is a heterogeneous disease usually characterized by chronic airway inflammation.
It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and intensity, together with variable expiratory limitation.

Medication Options

DIAGNOSIS: (1) CKD defined as either kidney damage or GFR <60 mL/min/1.73m² 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/1.73m² (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/1.73m² (3) evaluating extent of progression (4) clinical presentation: mild complications
Stage 3: (1) moderate decrease in GFR (2) GFR 30-59 mL/min/1.73m² (3) treating complications (4) clinical presentation: moderate complications
Stage 4: (1) severe decrease in GFR (2) GFR 15-29 mL/min/1.73m² (3) preparation for kidney replacement therapy (4) clinical presentation: severe complications
Stage 5: (1) kidney failure (2) GFR <15 mL/min/1.73m² (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 m² AND/OR IF UNABLE TO PREPARE/PERFORM THE FOLLOWING: (1) clinical action plan (2) evaluation of patient (3) recommended treatment
## Treatment General Approach

**APPROACH BASED ON SLOWING PROGRESSION OF KIDNEY DISEASE**

<table>
<thead>
<tr>
<th>Disease</th>
<th>Strict Glycemic Control</th>
<th>ACEIs or ARBs</th>
<th>Strict BP Control</th>
<th>Dietary Restriction</th>
</tr>
</thead>
</table>
| **Diabetic Kidney Disease**   | Target HbA1c 7.0% or less to prevent or delay progression of the microvascular complications of diabetes except in patients with comorbidities or limited life expectancy and risk of hypoglycemia | - BP control decreases development of microalbuminuria in type 2 diabetes  
- ACEIs and ARBs slow progression of CKD | <125/<75 mm Hg | No recommendations pending further KDIGO research and review |
| **Nondiabetic Kidney Disease**| None noted              | ACEIs and ARBs slow progression of CKD | <130/85 mm Hg & <125/<75 mm Hg if proteinuria | |
| **Kidney Disease in Transplant** | Data supporting changes to target HbA1c from what is noted above are very limited therefore no changes recommended at this time | In the absence of adequate clinical trials, it is not known whether ACEIs or ARBs prolong recipient or allograft survival | <130/85 mm Hg & <125/<75 mm Hg if proteinuria | |
## Treatment and Prevention

### APPROACH BASED ON SLOWING PROGRESSION OF KIDNEY DISEASE

| **Blood Pressure** | - Treat according to established guidelines with appropriate pharmacologic therapy - ACEI or ARB (KDOQI)  
- Meet specified target levels  
- Elevated blood pressure is associated with worse outcomes for CKD patients and strict BP control decreases progression of CKD |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| **Lab Values**    | - Evaluate and treat serum creatinine to GFR at least twice annually for moderate and high risk members Stage 3 and higher  
- 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 is persistent proteinuria and need for further evaluation and management for CKD  
- Hemoglobin (Hgb) annually  
- Monitor Lipids and treat with appropriate Statin or fibric acid derivative (KDOQI) |
| **Anemia**        | - Assess for anemia at least annually for therapy and administer transfusions, EPOGEN, PROCRIT, iron supplements oral or intravenous (iron dextran, sodium ferric gluconate, and iron sucrose) (KDOQI) |
| **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 |
| **Nephrologist**  | - At least annually for moderate and high risk members Stage 3 and higher |
| **Dietician**     | - Visit annually to review any need for changes in moderate and high risk members Stage 3 and higher |
| **Vaccinations**  | - Immunization strategies should be formulated early in the course of progressive renal disease to maximize the likelihood of vaccine-induced immunity (ACIP)  
- Influenza annually  
- For adults 19 and older for Pneumonia never vaccinated:  
  - Administer 1 dose of PCV13 first then  
  - > 8 weeks later administer PPSV23  
  - 5 years later administer one dose of PPSV23 |
| **Renal Replacement Therapy** | - Initiate preparation for renal replacement therapy (dialysis and transplantation), as well as vascular access care, when GFR < 30 mL/min |
References


National Kidney Foundation, KDOQI Clinical Practice Guidelines for Diabetes and Chronic Kidney Disease: 2012


National Kidney Foundation, KDOQI Clinical Practice Guidelines on Hypertension and Antihypertensive Agents in Chronic Kidney Disease: 2004

KDOQI US Commentary on the 2009 KDIGO Clinical Practice Guideline for the Care of Kidney Transplant Recipients, American Journal of Kidney Diseases, Vol 56, No 2, August 2010


MDwise Medical Advisory Council – Approval Date: 06/09/10; 12/14/11; 08/31/16
P0532 (06/10); 06/12/13; APP0162 (8/14); APP0254 (9/16)