

CKD Patient Education

What are the stages of CKD?

You have been told that you have CKD, or chronic kidney disease. Blood tests are necessary to determine if you are at risk for chronic kidney disease. The most commonly used blood test marker for kidney function is “**creatinine**”. However, creatinine can be an imperfect marker for patients that are in the early stages of kidney failure (in general, a normal creatinine is around 1.0 or below). To help screen patients for early kidney disease, an additional test is added to any chemistry panel checking kidney function called “eGFR”, or “Estimated Glomerular Filtration Rate”. This test is a *calculated* and *estimated* test of kidney function, and must be interpreted as such based on the patient’s age, gender, muscle mass, and general health. A lower eGFR suggests that your kidneys do not function as well as they should. Based on the eGFR your PCP may refer you to see a kidney specialist or nephrologist.

Their kidneys are busy organs! In addition to filtering waste products and regulating electrolytes, they have other jobs including hormonal functions that help maintain your blood counts and bone health. Based on your kidney stage, your nephrologist will be screening for anemia, electrolytes problems, and metabolic bone disease.

Stage	Description	eGFR
1	Increased risk for kidney damage but normal kidney function (diabetes, high blood pressure, family history, older age, urinary protein, polycystic kidneys)	>90
2	Kidney damage with mild loss of kidney function	60-90
3a	Mild to moderate loss of kidney function	45-59
3b	Moderate to severe loss of kidney function	30-44
4	Severe loss of kidney function	15-29
5	Kidney failure, not yet on dialysis	<15

A GFR below 60 for three months or more, or a GFR above 60 with kidney damage (marked by high levels of albumin or protein in the urine) indicates chronic kidney disease. Most of the time, chronic damage to the kidneys is irreversible; however, there are strategies that your nephrologist may recommend to slow the rate of kidney disease progression. In addition, episodes of acute kidney injury may lead to a rapid worsening of your kidney disease.

There are things that you can do to minimize the risk for temporary changes in kidney function, and to delay progression to ESRD (end-stage renal failure requiring dialysis or transplantation).

General prevention strategies:

- Control blood pressure; goal BP is < 130-140/80-90 for *most* patients with CKD.
- Control diabetes; goal HgA1c < 7 for *most* patients with CKD.
 - Talk with your doctor if you take Metformin, as the dose may need to be adjusted in CKD.
- Control cholesterol; use statin drugs if >50 years old or <50 years old with cardiovascular risk factors.
- Control protein in the urine.
 - ACE-Inhibitors or Angiotensin Receptor Blockers are blood pressure medications used for this reason.
- Control weight, goal BMI is 20 to 25 kg/m².
 - Increased body mass is associated with extra stress on the kidneys, wearing them out more quickly.
- Avoid NSAIDs (nonsteroidal anti-inflammatory drugs) or Cox-2 inhibitors, which are associated with episodes of acute kidney injury.
 - Examples (but NOT limited to this list):
 - Ibuprofen, Motrin, Advil, Naproxen, Aleve, Indomethacin, Celebrex, Meloxicam, Piroxicam
- Smoking cessation.
- Avoid Fleet's Enema to treat constipation; it has been associated with episodes of acute kidney injury, and may result in permanent and irreversible kidney damage.
- If you are started on new medications, **especially antibiotics**, please talk with the prescribing doctor to see if the medication should be dose adjusted for your level of kidney function, or if it might be contraindicated.
- Notify your doctor if you are at risk for severe dehydration (vomiting, diarrhea, etc).
- Talk with your doctor if you take medication for acid reflux in the class of "proton pump inhibitors" (examples include Protonix, Omeprazole, Prilosec, Nexium) as recent evidence suggests an association between these drugs and the development of chronic kidney disease.

Tests and Procedures:

- Certain procedures can be hard on patients with CKD. Please contact the ordering doctor if you are scheduled for any of the following tests, as there may be ways to minimize risk to your kidney function:
 - Heart catheterization
 - CT scan with intravenous contrast dye
 - Angiogram
 - MRI with gadolinium
- If you are scheduled for surgery, please contact your nephrologist to see if certain medications should be held prior to the procedure to minimize the risk of worsening of kidney function following surgery.
 - Diuretics and/or ACE-Inhibitors or Angiotensin Receptor Blockers may be held on the day of surgery.

If you desire more information about the above topic or other health related issues, please visit the following website: <http://www.nlm.nih.gov/medlineplus/chronickidneydisease.html>