

# It's In The Signs

Understanding chronic kidney disease and the signs to look for makes diagnosis and treatment easier



Detecting CKD early is key to preventing further damage to a patient's kidneys and overall health. However, many doctors simply don't know what alert signs to look for during their patients' routine exam.



Approximately 20 million adult Americans — one in nine — have chronic kidney disease (CKD) and its incidence is increasing rapidly. About a third do not even know they have the disease.

CKD means that the kidneys have been damaged. Kidneys can become damaged from a physical injury or a disease like diabetes or high blood pressure. Once the kidneys are damaged, they cannot filter blood or do other jobs as well as they should.

Diabetes and hypertension are the underlying causes in most cases of CKD. Evidence suggests that progression to kidney failure can be delayed or prevented by controlling blood sugar levels and blood pressure, and by treating proteinuria.

Unfortunately, CKD often is overlooked in its earliest, most treatable stages. National guidelines recommend estimating glomerular filtration rate (GFR) and screening for albuminuria in patients with risk factors for CKD.

The GFR is calculated by using a prediction equation detects CKD more accurately than the serum creatinine level alone. The GFR is also used for disease staging. When CKD is detected, an attempt should be made to identify and treat the specific underlying condition(s).

## Five Stages of CKD

There are five stages of kidney disease. Treatment in the early stages can help keep kidney disease from getting worse and progressing to the next stage. Primary care physicians have an important role in detecting CKD early, in instituting measures to slow disease progression, and in providing timely referral to a nephrologist.

## How to Diagnose CKD

Stages of Kidney Disease		
Stage	Description	Glomerular Filtration Rate (GFR)*
1	Kidney damage (e.g., protein in the urine) with normal GFR	90 or above
2	Kidney damage with mild decrease in GFR	60 to 89
3	Moderate decrease in GFR	30 to 59
4	Severe reduction in GFR	15 to 29
5	Kidney failure	Less than 15

Transplant recipient

Dialysis Patient (hemodialysis, peritoneal dialysis)

\*The GFR number tells the practitioner how much kidney function the patient has. As CKD progresses, the GFR decreases.

The old saying, “Knowing is half the battle,” is true for both patients and providers when it comes to discovering the warning signs of CKD.

Following these four steps can help you and your staff know the essential pieces of data to look for during an exam to detect CKD:

### Step 1: Know the causes

- Hypertension
- poorly controlled diabetes
- vasculitis
- scleroderma
- neoplasia
- autoimmunity
- drugs
- genetic abnormalities
- infections
- obstructive uropathy
- hypercalcemia

### Step 2: Know the signs and symptoms

- decreased or no urine output
- discolored urine
- flank pain (unilateral or bilateral)
- edema
- incidentally discovered elevations in the plasma creatinine
- concentration/abnormalities on urinalysis
- low hemoglobin of unexplained origin
- weakness and fatigue from anemia
- decreased appetite
- vomiting
- mental status changes or seizures

### Step 3: Know the tests

- microalbumin
- serum creatinine
- BUN (Blood Urea Nitrogen)
- GFR (Glomerular Filtration Rate)

- urinalysis, FENa (Fractional Urine sodium excretion)
- complete blood count
- plasma erythropoitin level (hormone that is secreted by kidneys necessary for blood cell production)
- serum calcium and phosphate levels
- vitamin D levels
- kidney ultrasound
- helical CT scan
- MRI (some cases)
- PET scan (especially in malignancies)
- kidney biopsy
- inulin or iothalamate clearance
- cimetidine induced competitive inhibition of creatinine secretion
- serum cystatin C

### Step 4: Know what to KEEP

In the U.S., the number of patients enrolled in the end stage renal disease program (a Medicare funded program) has increased from 10,000 in 1973 to 472,099 in 2004. For that reason alone, early prevention is essential in detecting and treating CKD.

The Kidney Early Evaluation Program (KEEP) is a screening program for individuals 18 years of age or older who are at high risk for developing CKD sponsored by the National Kidney Foundation.

KEEP offers free blood and urine testing, on-site consultation by a physician, referrals and additional follow-ups for those whose test results are abnormal, or who have diabetes, hypertension and/or a positive family history of CKD.

To find out more about this program, visit the NKF Web site at [www.kidney.org](http://www.kidney.org).