

# Introduction to Kidney Patients



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## KEYWORDS

• CKD • Proteinuria • Hematuria • Acute kidney failure

## KEY POINTS

- Many common medical conditions are associated with chronic kidney disease (CKD). Unfortunately, these are too often overlooked regarding their impact on kidney health until a crisis occurs or CKD has progressed to stage III or beyond.
- Early identification of patients with other conditions that impact kidney health is crucial in allowing the maintenance of current kidney health and slowing the progression between CKD stages.
- Prompt referral to nephrology on identification of these other conditions and recognition of CKD progression is a key element to managing patients with CKD.

More than 26 million people have chronic kidney disease (CKD) and another 73 million are at risk of CKD; yet less than 10% are aware of their diagnosis.<sup>1</sup> Identification of those patients at risk is crucial but often overlooked. Hypertensive diabetic patients are easily recognized as potentially having kidney disease, but what about atypical patients? CKD can be caused by other entities: focal segmental glomerulosclerosis (FSGS), lupus nephritis, glomerulonephritis, autosomal dominant polycystic kidney disease (ADPKD), immunoglobulin A (IgA) nephropathy, nephrolithiasis, and scleroderma, among others. This article is a review of those other kidney diagnoses including images and a review of staging of kidney patients using Kidney Disease Improving Global Outcomes (KDIGO) 2012 criteria.

CKD is primarily staged using the glomerular filtration rate (GFR), which takes into account age, race, gender, and serum creatinine. Kidney function is normal in stage I and minimally reduced in stage II; from stage III to V there is progression from

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moderate to severe disease culminating in end-stage renal disease (ESRD) (stage V) and often requiring dialysis. Most laboratories report GFR as greater than 60 mL/min for those in stage I or II, not listing a specific value until the GFR is less than 60 mL/min. This reporting, coupled with a busy primary care practice causing time constraints on visits, is a driving force behind this review which highlights the importance of increasing awareness of other kidney diagnoses with directions of when to refer (Fig. 1).

Patients will present with a myriad of complaints, many of which could implicate the kidney and signal the presence of, or a risk factor for, the development of CKD. Because of the escalating costs associated with treatment of ESRD, the identification of those at risk for CKD and early treatment is imperative. The following are case studies highlighting patients, much like those that walk into primary care provider's (PCP) offices daily, who are at risk for or have already developed CKD.

### CASE STUDY 1

#### *History of Present Illness*

A 28-year-old Caucasian man presents Monday morning to his PCP's office complaining of severe left flank pain that lasted for 2 days over the weekend. During this time, he had a single episode of red-colored urine. He denies any significant trauma or

Prognosis of CKD by GFR and Albuminuria Categories: KDIGO 2012				Persistent albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased  <30 mg/g <3 mg/mmol	Moderately increased  30–300 mg/g 3–30 mg/mmol	Severely increased  >300 mg/g >30 mg/mmol
GFR categories (ml/min/1.73 m <sup>2</sup> ) Description and range	G1	Normal or high	≥90			
	G2	Mildly decreased	60–89			
	G3a	Mildly to moderately decreased	45–59			
	G3b	Moderately to severely decreased	30–44			
	G4	Severely decreased	15–29			
	G5	Kidney failure	<15			

Fig. 1. Prognosis of CKD by GFR and albuminuria category. Green: low risk (if no other markers of kidney disease, no CKD); Yellow: moderately increased risk; Orange: high risk; Red, very high risk. (From KDIGO 2012 clinical practice guideline for the evaluation and management of chronic kidney disease. *Kidney Int Suppl* 2013;3:pp. 1–150; with permission. Available at: [http://www.kdigo.org/clinical\\_practice\\_guidelines/pdf/CKD/KDIGO\\_2012\\_CKD\\_GL.pdf](http://www.kdigo.org/clinical_practice_guidelines/pdf/CKD/KDIGO_2012_CKD_GL.pdf).)

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