

## Interpreting eGFR (ml/min/1.73 m<sup>2</sup>)

The new reporting method of eGFR (using non-raced based formula, adopted from ASN-NKF task force) will report the values in whole numbers instead of previous GFRs which were reported as either  $\geq 60$  ml/min/1.73 m<sup>2</sup> or if actual values only if GFR was  $< 60$  ml/min/1.73 m<sup>2</sup>.

This has led to number of physicians & patients questioning the interpretation of eGFR values that are between 60 to 90 ml/min/1.73 m<sup>2</sup>.

### Q1. When can a patient be labelled as having Chronic Kidney Disease (CKD)?

Following criteria needs to be fulfilled before labelling anyone as “CKD”

1. Decreased eGFR ( $< 60$  ml/min/1.73 m<sup>2</sup>) present for  $> 3$  months **OR**
2. Patients with markers of kidney damage (one or more) for  $> 3$  months irrespective of eGFR:
  - Albuminuria (Urine Albumin:Creatinine Ratio (UACR)  $\geq 30$  mg/g creatinine)
  - Urine sediment abnormalities (e.g. RBCS  $> 2$ /hpf, or RBC casts)
  - Electrolyte & other abnormalities due to tubular disorders
  - Abnormalities detected on kidney biopsy
  - Structural abnormalities detected by imaging (e.g. small kidney size like  $< 9$  cm in length, simple cysts are often common and diagnosis of CKD will depend number of cysts & age of patient)
  - History of kidney transplantation

### Q2. How is CKD staged?

This is based on Kidney Disease Improving Global Outcomes (KDIGO) 2012 consensus guidelines.

([https://kdigo.org/wp-content/uploads/2017/02/KDIGO\\_2012\\_CKD\\_GL.pdf](https://kdigo.org/wp-content/uploads/2017/02/KDIGO_2012_CKD_GL.pdf))

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

Green: low risk (if no other markers of kidney disease, no CKD); Yellow: moderately increased risk; Orange: high risk; Red, very high risk.

These patients do not have CKD unless they have markers of kidney damage like abnormal albuminuria or hematuria for 3 or more months

### Q3. Can you give some examples?

#### Example 1:

Mr X, a 75 y old male has eGFR of 40 ml/min/1.73 m<sup>2</sup> for the first time with no past labs for comparison. His urinalysis is otherwise normal. Does he have CKD?

No, we can only label him as “CKD” if we repeat eGFR 3 months later and find that his eGFR is still < 60 ml/min/1.73 m<sup>2</sup>. In the meantime, you can diagnose him with “renal insufficiency or decreased GFR” and review his risk factors for kidney disease and address these.

#### Example 2:

During your initial evaluation, the same Mr. X, was found to be taking 1200 mg of ibuprofen daily for last 6 months for arthritis. You stopped his ibuprofen. On follow-up 3 months later his eGFR is now improved to 70 ml/min/1.73 m<sup>2</sup>. Urinalysis repeated is also normal. Does he have CKD stage G2 as his eGFR is < 90 ml/min/1.72 m<sup>2</sup>?

No, although his repeat eGFR is between 60 – 90 ml/min/1.73 m<sup>2</sup>, he does not have CKD as he has no evidence of kidney damage. So he could be diagnosed with “decreased GFR or renal insufficiency”.

#### Example 3:

Mr X, comes back to his primary care physician a year later for his annual physical exam. His eGFR is 65 ml/min/1.73 m<sup>2</sup> and UACR of 50 mg/g of creatinine, otherwise urinalysis is normal. Does he have CKD?

No. His eGFR a year ago was 70 with no evidence of kidney damage and now eGFR is 65 but he has abnormal albuminuria (≥ 30 mg/g) as a possible indicator of kidney damage. His physician needs to repeat eGFR and UACR in 3 months.

#### Example 4:

3 months later, Mr. X's repeat eGFR is 65 and UACR is still 50 mg/g. Does he have CKD?

Yes, he has evidence of kidney damage for 3 months or longer in the form of abnormal albuminuria (although his eGFR is > 60). He has CKD stage 2!!

### Q 3. What is a normal eGFR?

In adults, the normal eGFR is > 90 ml/min/1.73 m<sup>2</sup>. eGFR declines with age, even in people without kidney disease. (Ref: [Estimated Glomerular Filtration Rate \(eGFR\) | National Kidney Foundation](#))

Age (years)	Average eGFR
20 – 29	116
30 – 39	107
40 – 49	99
50 – 59	93
60 – 69	85
70 +	75

