

eGFR Equation Update

Effective February 7, 2011, Quest Diagnostics will be reporting the estimated glomerular filtration rate (eGFR) using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation. The glomerular filtration rate (GFR) is the best overall index of the level of kidney function¹ and eGFR reporting is recommended by the National Kidney Foundation (NKF) and by the National Institutes of Health's National Kidney Disease Education Program (NKDEP).

Chronic kidney disease is defined as either: (1) kidney damage, or (2) $GFR < 60$ mL/min/1.73m², either condition being present for at least 3 months. Kidney damage is defined as pathologic abnormalities or markers of damage, including abnormalities in blood, urine or imaging studies.

The NKF defines the stages of CKD based on the GFR:

Stages of Chronic Kidney Disease		
Stage	Description	GFR [mL/min/1.73m²]
1	Kidney damage with normal or increased ↑GFR	≥ 90
2	Kidney damage with mildly decreased ↓ GFR	60-89
3	Moderately decreased ↓ GFR	30-59
4	Severely decreased ↓ GFR	15-29
5	Kidney failure	< 15 (or dialysis)

The CKD-EPI equation performed better than the Modification of Diet in Renal Disease Study equation, especially at higher GFR ($P < 0.001$ for all subsequent comparisons), with less bias (median difference between measured and estimated GFR, 2.5 vs. 5.5 mL/min per 1.73 m²), improved precision (interquartile range [IQR] of the differences, 16.6 vs. 18.3 mL/min per 1.73 m²), and greater accuracy (percentage of estimated GFR within 30% of measured GFR, 84.1% vs. 80.6%).² Another advantage of the CKD-EPI equation is that it is recommended by its authors to be used for calculating the full range of eGFR values, not just values < 60 mL/min/1.73m².

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1. National Kidney Foundation. *K/DOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification and Stratification*. Am J Kidney Dis 39:S1-S262, 2002 (suppl 1)
 2. Levey AS, Stevens LA, Schmid CH, Zhang YL, et al. A new equation to estimate glomerular filtration rate. Ann Intern Med 2009;150:604-12.