

## Updates on the Use and Reporting of Estimated GFR by CKD-EPI

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(1) Recent quality audits indicated that the number of grossly elevated estimated glomerular filtration rate (eGFR) results was higher than expected, and those with eGFRs greater than 90 were reported with actual numbers inappropriately. Physicians are reminded that the current eGFR based on the CKD-EPI equation can become unreliable and is thus not recommended for estimating GFR under the following conditions:

- Hemodynamically unstable
- Age <18
- Extremes of body size or habitus (including amputations)
- Exceptional dietary intake e.g. vegetarian diet or creatine supplements
- Diseases of skeletal muscle, paraplegia, cachexia, etc
- Rapidly changing kidney function or on dialysis
- Pregnancy

Other potential confounding factors include ethnicities other than Caucasians and individuals of African descent, individuals aged over 70, and use of medications such as cephalosporin, aminoglycoside antibiotics, flucytosine, cisplatin, cimetidine and trimethoprim. Results should be interpreted with caution under these situations.

(2) Values of eGFR greater than 90 are usually associated with low creatinine levels which are difficult to measure themselves, and can lead to very imprecise GFR estimations. Thus, eGFR values greater than 90 will no longer be reported with actual numeric values.

(3) Estimated GFR (CKD-EPI) has not been validated in patients aged <18, and, thus, will no longer be reported in this age category. In children and adolescents, GFR may conveniently be estimated using a modified Schwartz formula (so-called “bedside Schwartz”) as shown below:

“Bedside Schwartz” equation:

$$eGFR \text{ in mL/min/1.73 m}^2 = 36.2 \times (\text{Height in cm/Creatinine in } \mu\text{mol/L})$$

On-line GFR calculators (<https://www.niddk.nih.gov/health-information/communication-programs/nkdep/laboratory-evaluation/glomerular-filtration-rate-calculators/children-si-units>) and related information can be found at <https://www.kidney.org/professionals/KDOQI/gfr#faq>.

## References:

1. Levey AS, Stevens LA, Schmid CH, et al. A new equation to estimate glomerular filtration rate. *Ann Intern Med.* 2009;150(9):604-612.
2. Levey AS, Stevens LA. Estimating GFR using the CKD Epidemiology Collaboration (CKD-EPI) creatinine equation: more accurate GFR estimates, lower CKD prevalence estimates, and better risk predictions. *Am J Kidney Dis.* 2010;55(4):622-627.
3. Schwartz GJ and Work DF. Measurement and estimation of GFR in children and adolescents. *J Am Soc Nephrol.* 2009; Nov; 4(11): 1832-643.