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New Estimated GFR Equation

Effective Date: May 8, 2022

Laboratory Bulletin

In 2021, the National Kidney Foundation (NKF) and American Society of Nephrology (ASN) Task Force recommended implementation of the CKD-EPI creatinine equation refit without the race variable, to calculate estimated glomerular filtration rate (eGFR) in adults. Effective May 8th, the old CKD-EPI equation with the race factor will be replaced by the new equation. The assay of creatinine remains unchanged.

New equation:
$$eGFR_{cr} = 142 \times \min(Scr/\kappa, 1)^\alpha \times \max(Scr/\kappa, 1)^{-1.200} \times 0.9938^{Age} \times 1.012 \text{ [if female]}$$

where:
Scr = serum creatinine in mg/dL
κ = 0.7 (females) or 0.9 (males)
α = -0.241 (female) or -0.302 (male)
$\min(Scr/\kappa, 1)$ is the minimum of Scr/κ or 1.0
$\max(Scr/\kappa, 1)$ is the maximum of Scr/κ or 1.0
Age (years)

Old equation:
$$GFR = 141 \times \min(Scr/\kappa, 1)^\alpha \times \max(Scr/\kappa, 1)^{-1.209} \times 0.993^{Age} \times 1.018 \text{ [if female]} \times 1.159 \text{ [if African American]}$$

where:
Scr is serum creatinine in mg/dL,
κ is 0.7 for females and 0.9 for males,
α is -0.329 for females and -0.411 for males,
min indicates the minimum of Scr/κ or 1, and
max indicates the maximum of Scr/κ or 1
Age (years)

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