Calculation of estimated glomerular filtration rate (eGFR):  
/* compute eGFR for sample with known serum creatinine values */

The CKD-EPI equation is the recommended calculation for a general population:

\[
eGFR = 141 \times \min\left(\frac{S_{cr}}{\kappa}, 1\right)^{\alpha} \times \max\left(\frac{S_{cr}}{\kappa}, 1\right) \times 0.993^{\text{Age}} \times 1.018 \ [\text{if female}] \times 1.159 \ [\text{if black}]
\]

where:
- \(S_{cr}\) is serum creatinine in mg/dL,
- \(\kappa\) is 0.7 for females and 0.9 for males,
- \(\alpha\) is -0.329 for females and -0.411 for males,
- \(\text{min}\) indicates the minimum of \(S_{cr}/\kappa\) or 1, and
- \(\text{max}\) indicates the maximum of \(S_{cr}/\kappa\) or 1.

The MDRD (Modification of Diet in Renal Disease) equation is an alternative calculation and performs well in a population of individuals with chronic kidney disease:

\[
eGFR = 175 \times S_{cr}^{-1.154} \times \text{age}^{-0.203} \times 0.742 \ [\text{if female}] \times 1.212 \ [\text{if black}]
\]

where eGFR is expressed as mL/min per 1.73 m² of body surface, and \(S_{cr}\) is serum creatinine measured in mg/dL.

Note:

Recent developments for reporting ethnic and racial groups in medical journals (1), have amplified concerns regarding the utility of using race to estimate kidney function (2), and is a topic of ongoing research (3-4). Please be mindful of these issues.


