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:

\[
eGFR = 141 \times \min(S_{cr} / \kappa, 1)^{\alpha} \times \max(S_{cr} / \kappa, 1)^{-1.209} \times 0.993^{\text{Age}} \times 1.018 \times 1.159
\]

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,
- \(\min\) indicates the minimum of \(S_{cr} / \kappa\) or 1, and
- \(\max\) 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:

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

where \(eGFR\) is expressed as mL/min per 1.73 m\(^2\) 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). Please be mindful of these issues.

