

Renal Function Assessment Equations

Adults: (≥ 17 years)

$$\text{CrCl (ml/min)} = \frac{(140 - \text{Age}) \cdot \text{CrClWt}}{72 \cdot \text{SrCr}} \cdot (0.85 + \text{Sex} \cdot 0.15)$$

If the patient is $<$ IBW, use CrCl-Wt = ABW.

If the patient is $>$ IBW and BMI $<$ 25 Kg/m², CrCl-Wt = IBW

If the patient has a BMI \geq 25 Kg/m², CrCl-Wt = AdjWT

IBW (males)

$$50 \text{ Kg} + 2.3 \text{ Kg/inch over 5 feet}$$

IBW (females)

$$45.5 \text{ Kg} + 2.3 \text{ Kg/inch over 5 feet}$$

$$\text{BMI} = \text{Wt (Kg)} / (\text{Ht (In)} \cdot 0.0254)^2$$

If ActBW is $>$ 30% over IBW, then

$$\text{DWT} = \text{IBW} + 0.4 \cdot (\text{ActBW} - \text{IBW})$$

If BMI \geq 25 Kg/m², then

$$\text{CrCl-WT} = \text{IBW} + 0.4 \cdot (\text{ActBW} - \text{IBW})$$

Neonates: ($<$ 2 months)

$$\text{CrCl (ml/min/1.73m}^2) = \frac{0.45 \cdot (\text{CmHt.})}{\text{SrCr}}$$

Pediatrics: (2 months – 16 years)

$$\text{CrCl (ml/min/1.73m}^2) = \frac{3.5 \cdot \text{Age} + 23.6}{\text{SrCr}}$$

$$\text{BSA} = \text{Wt}^{0.5378} \cdot \text{Ht}^{0.3964} \cdot 0.024265$$

$$\text{CrCl Norm} = \text{CrCl} \cdot 1.73 / \text{BSA}$$

GFR Estimations

$$\text{GFR} = 175 \cdot \text{SrCr}^{-1.154} \cdot \text{Age}^{-0.203} \cdot (0.742 + \text{Sex} \cdot 0.258) \cdot (1 + 0.21 \cdot \text{Black}) \quad \text{Black} = 1, \text{ else} = 0, \\ \text{Sex: Male} = 1, \text{ female} = 0$$

$$\text{GFR (CKD - EPI)} = (144 - (\text{Sex} \cdot 3)) \cdot (1 + 0.155 \cdot \text{Black}) \cdot 0.993^{\text{Age}} \cdot \left(\frac{\text{SrCr}}{(0.7 + (0.2 \cdot \text{Sex}))} \right)^{-0.329 - \text{SrCrExp}}$$

[where Sex = 1 for male, 0 for female, Black = 1 for Black, 0 for other races. and
If SrCr $>$ (0.7 + 0.2*Sex) Then SrCrExp = 0.88 , Else SrCrExp = Sex*0.082]
