

Acute Renal Failure (ARF) / Acute Kidney Injury (AKI)

AKI is defined as **any** of the following:

- **Increase** in Serum Creatinine (SCr) by ≥ 0.3 mg/dl (≥ 26.5 $\mu\text{mol/l}$) **within** 48 hours
- **Increase** in SCr to ≥ 1.5 times the patient's baseline level, which is **known or presumed** to have occurred within the prior 7 days
- Urine volume < 0.5 ml/kg/h for 6 hours

Key Points:

- A **decrease** in SCr 0.3 mg/dl should not be used to diagnose AKI
 - A decrease can be evaluated by the patient's **SCr divided by 1.5** to determine the decrease necessary to meet criteria.
- Acute Renal Failure or Acute Kidney Injury are the preferred terms when a patient meets criteria for AKI.
- Acute Renal Insufficiency does not adequately capture the patient's severity of illness.

Table 9 | Estimated baseline SCr

Age (years)	Black males mg/dl ($\mu\text{mol/l}$)	Other males mg/dl ($\mu\text{mol/l}$)	Black females mg/dl ($\mu\text{mol/l}$)	Other females mg/dl ($\mu\text{mol/l}$)
20-24	1.5 (133)	1.3 (115)	1.2 (106)	1.0 (88)
25-29	1.5 (133)	1.2 (106)	1.1 (97)	1.0 (88)
30-39	1.4 (124)	1.2 (106)	1.1 (97)	0.9 (80)
40-54	1.3 (115)	1.1 (97)	1.0 (88)	0.9 (80)
55-65	1.3 (115)	1.1 (97)	1.0 (88)	0.8 (71)
> 65	1.2 (106)	1.0 (88)	0.9 (80)	0.8 (71)

Estimated glomerular filtration rate= 75 (ml/min per 1.73 m²)= $186 \times (\text{serum creatinine } [S_{Cr}])^{-1.154} \times (\text{age})^{-0.203} \times (0.742 \text{ if female}) \times (1.210 \text{ if black}) = \exp(5.228 - 1.154 \times \ln [S_{Cr}] - 0.203 \times \ln(\text{age}) - (0.299 \text{ if female}) + (0.192 \text{ if black}))$.

- Baseline SCr can be estimated using the MDRD Study equation assuming a baseline eGFR of 75/ml/minⁱ.

ⁱ <https://kdigo.org/guidelines/acute-kidney-injury/>