

Calculating standardised Kt/V for the Scottish Renal Registry Annual Report

Data required

- URR
- Dialysis access i.e. arterial or venous
- Frequency of dialysis
- Treatment time of each dialysis session

Step 1 (calculate spKt/V)

spKt/V is the single-pool Kt/V is calculated by calculating the logarithm of R. The URR value reported for each patient is expressed as R as follows:

$$R = (1 - (\text{URR}/100))$$

For example for a URR value = 75%

$$\text{then } R = (1 - (0.7/100)) = 0.25$$

and spKt/V is calculated as **spKt/V = -LN(R)**

Step 2 (calculate eKt/V)

eKt/V is the equilibrated Kt/V, computed from the single-pool Kt/V (spKt/V) and session length (t) using the Tattersall equation^[1]:

$$ekt/V = spKt/V \cdot \frac{t}{t + C}$$

where t is session duration in minutes, and C is a time constant, which is specific for type of access and type solute being removed. For urea, C should be 35 minutes for arterial access and 22 min for a venous access.

Step 3 (calculate stdKt/V)

Standardised Kt/V is calculated using the formula below^[2]:

$$stdKt/V = \frac{\frac{10080 \cdot (1 - e^{-eKt/V})}{t}}{\frac{1 - e^{-eKt/V}}{spKt/V} + \frac{10080}{N \cdot t} - 1}$$

where N = times per week and t = treatment time in minutes.

1. Tattersall JE, DeTakats D, Chamney P, Greenwood RN, Farrington K (December 1996). The post-hemodialysis rebound: predicting and quantifying its effect on Kt/V. *Kidney Int.* 50 (6): 2094–102
2. Leypoldt JK, Jaber BL, Zimmerman DL: Predicting treatment dose for novel therapies using urea standard Kt/V. *Semin Dial* 17:142-145, 2004