Renal function calculation and drug dosing/monitoring		
Version 1	May 2021	Review date: May 2024

NHS
Nottinghamshire Area Prescribing Committee

Renal function calculation and drug dosing/monitoring

Local consensus is that:

- **Creatinine clearance (CrCl) must be used for calculating renal function** using the Cockroft and Gault equation (see below). eGFR is **not** a suitable alternative

$$\text{CrCl (ml/min)} = \frac{(140 - \text{age}) \times \text{wt (kg)}}{\text{serum creatinine (micromol/l)}} \times 1.04 \text{ (female) or } 1.23 \text{ (male)}$$

The clinical systems used in Nottinghamshire in primary care (SystmOne and EMIS) have an inbuilt Cockcroft-Gault based renal function calculator. It is very important to ensure that up-to-date values are being used, particularly for weight and creatinine. The inbuilt calculators vary in how they adjust weights for patients at extremes of body weight. If making dosing decisions, we would recommend using a web based calculator such as MDCalc (as below) which gives a range of possible values for CrCl based on the different methods of adjusting for weight. Where these results cross or are close to a CrCl level that may require a dose change, this can support the clinician making a dosing decision. Always remember that the CrCl is an estimate and should not be considered in isolation.

If your built in CrCl calculator does not work you can use the MD+ CALC Creatinine Clearance calculator (it can be downloaded as an app to an apple or android device). Always use the most up to date values and check the default units are correct when entering weight, serum creatinine and height. It would be good practice for the clinician reviewing the patient to document what method was used.

Medication dosing and dose adjustments

- CrCl must be used to check renal function when initiating or adjusting medication dosage.

On-going medicine monitoring

- When reviewing haematological results as part of on-going medication monitoring a rapid fall or rise or consistent downward or upward trend in any value should prompt caution and extra vigilance. In such cases CrCl should be calculated and medication dosage reviewed.

Patients undergoing gender reassignment treatments (*As information is limited, a clinical decision will also be necessary and the benefits of therapy balanced against the risk of adverse effects or potential under-dosing.)*

- **Patient is not taking gender-affirming hormonal therapy or started therapy <1 month prior**

Calculate renal function based on sex at birth

- **Initiation of therapy <6 months prior**

Consider calculating estimated renal function based on sex at birth

- **Initiation of therapy ≥6 months prior**

Consider calculating estimated renal function based on gender identity.

If you have concerns about dose adjustments based on renal function, please seek advice from your local specialists.