

13 - General principles of prescribing in renal im

General principles of prescribing in renal impairment

766 The Maudsley® Prescribing Guidelines in Psychiatry CHAPTER 8 Renal impairment Using drugs in patients with renal impairment needs careful consideration. This is partly because some drugs are nephrotoxic but principally because the pharmacokinetics (absorption, distribution, metabolism, excretion) of drugs are altered in renal impairment. In particular, patients with renal impairment have a reduced capacity to excrete drugs and their metabolites. General principles of prescribing in renal impairment

- ■ Estimate the excretory capacity of the kidney. Laboratories usually report renal function based on the estimated glomerular filtration rate (eGFR). This is derived from either the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula or the Modification of Diet in Renal Disease (MDRD) formula. The CKD-EPI formula is more accurate than the MDRD and is preferred, but note that these estimates are still less than perfect when compared with directly measured GFR.¹
- ■ Check proteinuria by measuring urinary albumin and calculate the albumin : creatinine ratio. This is because proteinuria is a significant risk factor for progression to end stage disease.¹
- ■ For most drugs and most adult patients of average build and height, eGFR (calculated using the CKD-EPI formula, Box 8.1) can be used to determine dose adjustments.
- ■ For nephrotoxic drugs, elderly patients (75 years and over) and patients at both extremes of muscle mass (body mass index [BMI] <18 or >40kg/m²), calculate creatinine clearance (CrCl) to determine dose adjustments. In addition, the Medicines Healthcare products Regulatory Agency (MHRA) advises that CrCl should be used as an estimate of renal function for direct-acting oral anticoagulants (DOACs) and drugs with a narrow therapeutic index that are mainly renally excreted (e.g. lithium) (UK Kidney Association, <https://ukkidney.org>). The Cockcroft and Gault equation should be used to calculate CrCl (Box 8.2). Box 8.1 Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula This replaces the previously used modification of diet in renal disease (MDRD) equation)² although some pathology departments still use MDRD. GFR S k,1 S k,1 0.993 1.018 if cr cr 1.209 Age

$\min () \max [() //$

female 1.159 if black] []

Where Scr is serum creatinine in mg/dL κ is 0.7 for females and 0.9 for males α is -0.329 for females and -0.411 for males min indicates the minimum of Scr/ κ or 1 max indicates the maximum of Scr/ κ or 1 ■ ■ Online calculator available at https://www.kidney.org/professionals/kdoqi/gfr_calculator

Revision #1

Created 2026-01-04 20:17:20 UTC by Omar Ayman

Updated 2026-01-04 20:17:20 UTC by Omar Ayman