Learning Portal Lite: **Medicines in renal disease**
This is a one-page summary; see the full version online

Medicines and the kidneys
Medicines and their metabolites vary in the extent to which they depend on the kidney for clearance from the body. Renal impairment can alter how a drug is excreted, distributed, and occasionally how it is metabolised.

Assessing renal function
Renal function deteriorates naturally with age. It is assessed by measuring or estimating glomerular filtration rate (GFR). One method uses the Cockcroft-Gault calculation of creatinine clearance. Another method, known as eGFR assumes a standard body surface area. These methods do not give the same answer.

Renal replacement therapy (RRT)
There are four common types of RRT: haemodialysis (HD), peritoneal dialysis (PD), haemofiltration (HF), and haemodiafiltration (HDF). Factors affecting whether they remove medicines from the body include the drug's protein binding, molecular weight and water solubility, and the flow rate and chemistry of the dialysis membrane. It is vital to know which type of RRT a patient is receiving before offering any advice on medicine dose or choice.

Renal transplant patients
Patients with healthy transplants may not need dose reduction of renally eliminated medicines, but drugs that may impair kidney function should be avoided. Pharmacists must check that transplant recipients' immunosuppressants don't interact with other medicines.

Medicines that impair kidney function
Three common mechanisms for drug-induced harm are functional renal impairment (e.g. NSAIDs), nephrotoxicity (e.g. gentamicin), and glomerulonephritis (e.g. penicillins).

Questions to ask
If advising about use of medicines in renal impairment, your questions should include:
- What is the medicine for, and what's your preferred choice?
- What is the extent of the renal impairment, and is it acute and/or chronic?
- Is the patient receiving any renal replacement therapy?

Information sources
These include SmPCs and the Renal Drug Database.

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