

# Learning Portal Lite: Drug handling

This is a one-page summary; see the [full version online](#)

## Definitions

Some of the concepts covered in this tutorial include:

- **Pharmacokinetics:** what the human body does to a medicine.
- **Pharmacodynamics:** what the medicine does to the body (both beneficial effects and side effects).
- **Half-life:** the time taken for the amount of drug in the body to fall by half, which determines the time to steady state, elimination rate, and the frequency of dosing.

## Factors affecting drug handling

These include:

- The extent to which a medicine is eliminated by the kidney and/or metabolised by the liver, and the impact of any disease on these organs.
- Patient age and weight may also affect drug handling. For example:
  - Older patients may develop important changes in drug distribution, metabolism, renal excretion and pharmacodynamic responses compared to younger adults.
  - Neonates have immature metabolism and renal function which both improve with age.

## Therapeutic drug monitoring

Monitoring the blood levels of drugs with a narrow therapeutic index and a predictable concentration-response relationship helps patients to achieve a good response to therapy and protects them from toxicity. Example medicines include phenytoin and gentamicin.

## Questions to ask

Questions about drug handling vary in their nature but if asked about monitoring plasma levels of medicines, your questions could include:

- When was the medicine started and what is the dose?
- What were previous levels, and have doses changed recently?
- Are there medicines or medical conditions that may be adversely affecting levels?

## Information sources

SmPCs, Martindale, UpToDate and similar sources can be helpful for determining a range of pharmacokinetic data. Check if you have any local guidance on therapeutic drug monitoring.