

# Teaching Resource Centre Pharmacology

[trc-p.nl](http://trc-p.nl)

# Online pharmacology education resource

## Intravenous administration

### Intravenous administration (IV)

Drugs may be given into a peripheral vein over a few minutes or longer by infusion. If given as a single injection the plasma concentrations over time often look like those shown in the graphic. Rapid injections are used to treat epileptic seizures, acute asthma, or cardiac arrhythmias.

#### Advantages:

A quick response is possible (it takes 1 min to circulate and 10-15 seconds to get to brain). Plasma concentration can be precisely controlled using IV infusion administration.

The whole dose is delivered to the blood stream. This means that the bioavailability is considered to be 100% after IV administration. Larger doses may be given by IV infusion over an extended time. Poorly soluble drugs may be given in a larger volume

over an extended time period.

Irritant drugs can be given via a central line in order to be quickly diluted and decrease local damage.

#### Disadvantages:

It may be difficult to find a suitable vein (or insert central line). There may be some tissue damage at the site of injection.

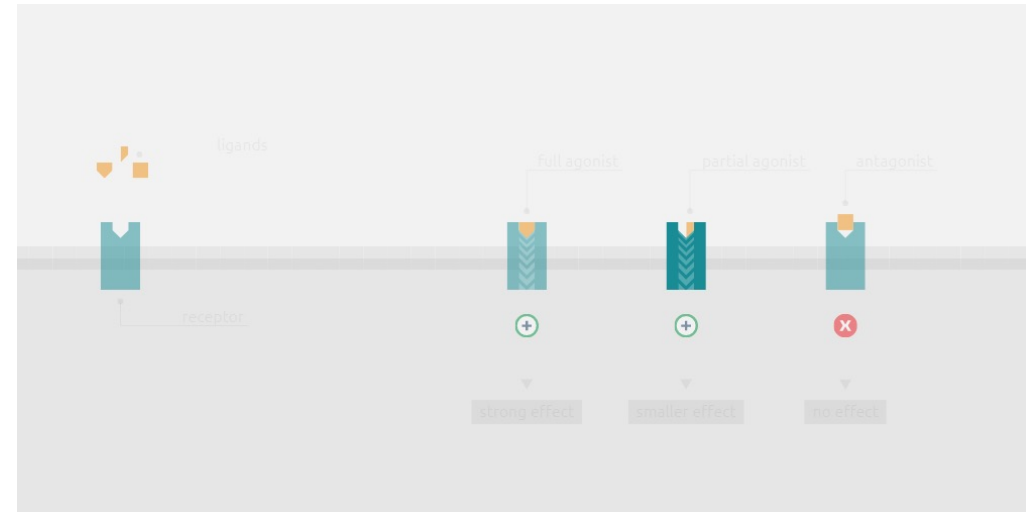
Because of the rapid response, toxicity can be a problem with rapid drug administrations. For drugs where this is a particular problem the dose should be given as an infusion, monitoring for toxicity.

Trained personnel are required to give intravenous injections.

Sterility, pyrogen testing and larger volume of solvent means greater cost for preparation, transport and storage.

# Advantages for education

- Interactive images
- Easy to share, export and embed
- PK/PD simulator



Dose (mg)

Absorption rate constant (/h)

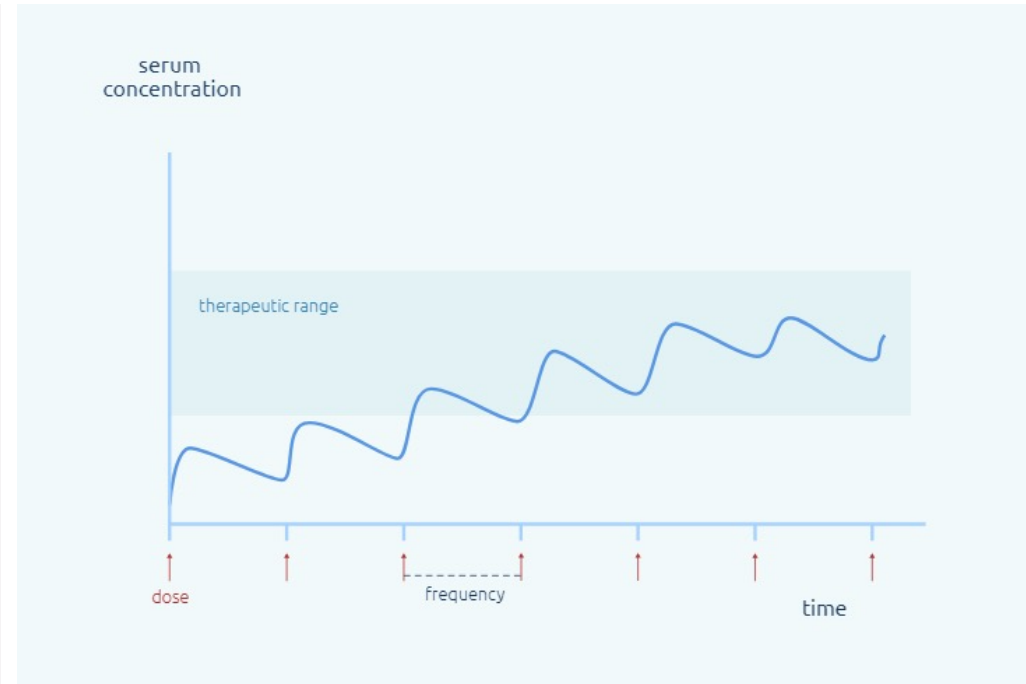
Bioavailability (%)

Dosing interval (h)

Simulate for x hours

Interval on x-axis

Show both linear and logarithmic y-axis

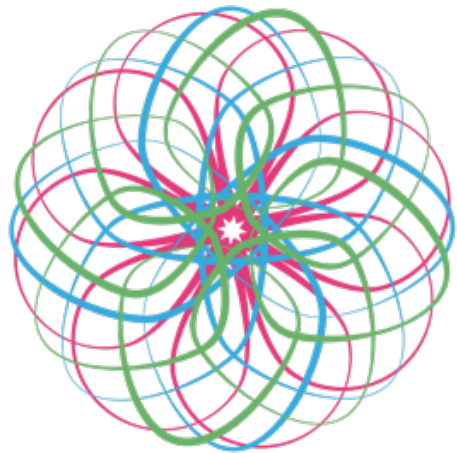


# Pharmacology education

- CHDR / LUMC
- Amsterdam, Rotterdam, Nijmegen
- NVKFB medication-safety test reader
- BPS

# Content generation

- Ongoing improvement and expansion by clinical pharmacologist (in training)
- Editorial board
- Graphic designer



# CHDR

Centre for Human Drug Research