

Digoxin – Loading Dose Guide (Adults)

- Digoxin is indicated in the management of chronic cardiac failure. The therapeutic benefit of digoxin is greater in patients with ventricular dilatation.
- Digoxin is specifically indicated where cardiac failure is accompanied by atrial fibrillation.
- Digoxin is indicated in the management of certain supraventricular arrhythmias, particularly atrial fibrillation and flutter, where its major beneficial effect is to reduce the ventricular rate.

Check the drug history	Digoxin-induced cardiac toxicity may resemble the presenting cardiac abnormality. If toxicity is suspected, a plasma level is required prior to giving additional digoxin.
When to use IV loading	The intravenous route should be reserved for use in patients requiring urgent digitalisation, or if patients are nil by mouth or vomiting. The intramuscular route is painful, results in unreliable absorption and is associated with muscle necrosis and is therefore not recommended.
IV loading dose	500 to 1000 micrograms IV Reduce dose in elderly or weight < 50 kg, or cardiac failure, or renal impairment Prescribe and administer the loading dose in 2 portions with half of the total dose given as the first portion and the second portion 6 hours later. Write "LOADING Dose" on the prescription Add dose to 50 - 100mL of Sodium chloride 0.9% or glucose 5% Administer using a rate controlled infusion pump over 2 hours Do NOT give as a bolus
Oral loading dose	500 micrograms PO then a further 500 micrograms 6 hours later Write "LOADING DOSE" on the prescription Then assess clinically and prescribe maintenance dose if indicated
Warning	The loading doses may need to be reduced if digoxin or another cardiac glycoside has been given in the preceding two weeks. The elderly are more susceptible to toxicity
Oral Maintenance dose	Revert to oral therapy as soon as possible Usual range is 125 to 250 micrograms OM (atrial fibrillation or flutter) 62.5 to 125 micrograms OM (heart failure for patients in sinus rhythm) Reduce dose in renal impairment
Bioavailability	125 microgram tablet is bioequivalent to 125 microgram elixir (50 micrograms/mL) and to 100 microgram injection
Ideal sampling time	At least 6 hours post IV dose At least 6 hours post PO dose, or pre-dose
Routine levels are NOT recommended. Reasons to check level:	Renal impairment, lack of response, interacting medication started or stopped, symptoms of toxicity
Therapeutic drug monitoring	Accepted therapeutic range = 0.9 to 2.0 micrograms per litre
Toxic effects	Nausea, vomiting, diarrhoea, visual disturbances, arrhythmias – typically ventricular extrasystoles and atrial tachycardia with varying AV block, sinus bradycardia
Monitoring	Monitor ECG, heart rate and blood pressure Cardiac side-effects of digoxin are increased by acidosis, hypokalaemia, hypomagnesaemia, hypercalcaemia, hypoxia and hypothyroidism
Major factors influencing serum levels	Renal impairment, congestive heart failure, hyperthyroidism, hypothyroidism. Interacting medicines e.g. amiodarone, amphotericin, ciclosporin, dronedarone, diltiazem, diuretics, hydroxychloroquine, lercanidipine, nifedipine, nifedipine, verapamil, quinine, St John's wort. This is not an exhaustive list. Refer to the BNF or Ward Pharmacist