

Standard Drug List, The School of Pharmacy, University of Otago (2007)
Example Drug Profile – Gentamicin

Generic name	gentamicin	
Class	Chemical	3 linked amino-sugar units (produced from Actinomycetes spp) – is a mixture of 3 components
	Therapeutic	aminoglycoside antibiotic
Main structure activity	Activity differences between aminoglycosides conferred by the structure of the aminosugars. For gentamicin substitution of CH ₃ - or H- at R1 & R2 confer little change in activity.	
Physicochemical properties	A/B/N pKa logP	B 8.2 (approx) -1.9
Formulation/administration	Injection, to be administered by intermittent intravenous infusion over 30 minutes. Also available as eyedrops.	
Storage	Room temperature	
Indications	Mod-severe infections with sensitive organisms – usually aerobic gram-negative. Infections incl. febrile neutropenia, hosp acq pneumonia, complicated pyelonephritis...	
Mechanism of action	Micro	Binds to ribosome 30S and 50S subunits – interferes with protein synthesis
	Macro	Concentration-dependent bactericidal activity
Pharmacokinetics	F Prodrug? Vd CL fe CYP Active Metabolites	0% (not absorbed orally) No 18 L/70 kg (same as extracellular fluid vol) 4 L/h/70kg (depends on GFR) 95% Nil Nil
Side effects	Type A	nephrotoxicity (5-10%), ototoxicity (vestibular and sensory hearing), muscle relaxant
	Type B	Rash (v rare), blood dyscrasias (v rare)
Interactions	Drugs	No PK interactions of note. May enhance nephrotoxicity of other nephrotoxic drugs
	Food	Nil
Contraindications	Absolute	allergy to gentamicin
	Relative	-
Pregnancy	Classification	D – rare reports of ototoxicity in neonates, possibility also of nephrotoxicity in neonates
Lactation	% Wt Adj Mat dose	Irrelevant as not absorbed orally by baby.
Evidence base	Strong evidence in favour of once daily dosing with TDM	