Table D.11 Optimal concentration ranges for selected medicines (continued)

Medicine	Therapeutic range		Toxic concentration	Time to steady state	Comments
	Gravimetric units	Molar units (SI)			
Anti-infectives					
Chloramphenicol	Trough <10 mg/L Peak <25 mg/L	Trough <31 micromol/L Peak <78 micromol/L	>25 microgram/mL	7.5–20.5 hours	
Flucytosine	Trough >25 mg/L	>190 micromol/L	>100 mg/L	13–30 hours	
Gentamicin	5–10 microgram/mL (6–14 hours post dose if once per day dosing)		Multiple daily dosing: Peak >10 microgram/mL Trough >2 microgram/mL	5–15 hours (adult); 3–12 hours (child); 15–25 hours (infant); 20–40 hours (neonate); 8–30 hours (elderly)	Use of nomogram recommended. Area under the curve (AUC) monitoring recommended for some situations (e.g. pulmonary infections in cystic fibrosis patients)
Tobramycin	5–10 microgram/mL		Multiple daily dosing: Peak >10 microgram/mL Trough >2 microgram/mL	5–15 hours (adult); 3–12 hours (child); 15–25 hours (infant); 20–40 hours (neonate); 8–30 hours (elderly)	
Vancomycin	5–10 mg/L (non-MRSA) 10–20 mg/L (MRSA infection) (trough level during once or twice daily dosing)		Peak >40 microgram/mL Trough >10 microgram/mL	28–43 hours (adult); 18–39 hours (child/infant); 7–54 hours (premature neonate)	Peak levels do not correlate with efficacy or toxicity
Antineoplastics and immuno-suppressives					
Cyclosporin	**Following transplant: C_0(trough) concentrations:** First 3 months / Maintenance Kidney: 150–300 microgram/L / 100–200 microgram/L Liver: 150–300 microgram/L / 100–200 microgram/L Heart: 250–350 microgram/L / 150–250 microgram/L Bone marrow: 100–300 microgram/L / 100–300 microgram/L **C_2 (2 hour) target concentrations** Heart: 0–3 months: 600–800 microgram/L 3–6 months: 500–700 microgram/L >6 months: 300–600 microgram/L Renal: 2 months: 1,500 microgram/L 3 months: 1,300 microgram/L 4–6 months: 1,100 microgram/L 7–12 months: 900 microgram/L >12 months: 800 microgram/L Liver: 0–6 months: 1,000 microgram/L 7–12 months: 800 microgram/L >12 months: 600 microgram/L			30 hours Time to steady state may be longer soon after transplant or if patient has hepatic impairment	EDTA—whole blood is used and trough concentration ranges reported Multiple interactions—caution needed. Monitoring concentration at 2 hour post dose is preferred method
Everolimus	Trough 3–8 microgram/L			4–5 days	
Sirolimus	With calcineurin inhibitor 6–15 microgram/L, without inhibitor up to 20 microgram/L			14 days	Minimise calcineurin inhibitor 2–4 months post transplant due to risk of synergistic nephrotoxicity
Tacrolimus	Transplant of: Kidney: 10–20 microgram/L (0–3 months); 5–15 microgram/L (4–12 months) Liver: 2–15 microgram/L Heart: 10–15 microgram/L		>15 microgram/L	2–2.5 days	EDTA—whole blood is monitored. May depend on assay. Trough concentrations monitored