

Table 32. Reference ranges for common medications monitored for therapeutic dosing*

Drug	Therapeutic range	Toxic level
Acetaminophen**	70–130 µmol/L (5–20 µg/mL)	> 260 µmol/L (> 40 µg/mL)
Amikacin	peak: 34–51 µmol/L (20–30 µg/mL) trough: 7–14 µmol/L (4–8 µg/mL)	peak: > 60 µmol/L (> 35 µg/mL) trough: > 17 µmol/L (> 10 µg/mL)
Amitriptyline	433–540 nmol/L (120–150 ng/mL)	> 805 nmol/L (> 500 ng/mL)
Carbamazepine	21–51 µmol/L (5–12 µg/mL)	> 51 µmol/L (> 12 µg/mL)
Clonazepam	40–200 nmol/L (15–60 ng/mL)	> 260 nmol/L (> 80 ng/mL)
Desipramine	563–1125 nmol/L (150–300 ng/mL)	> 1875 nmol/L (> 500 ng/mL)
Diazepam	1.75–7.0 nmol/L (0.5–2 mg/L)	> 11 nmol/L (> 3 mg/L)
Digoxin	1–2.6 nmol/L (0.8–2 ng/mL)	> 2.6 nmol/L (> 2 ng/mL)
Disopyramide	6–15 µmol/L (2–5 µg/mL)	> 21 µmol/L (> 7 µg/mL)
Ethosuximide	280–708 µmol/L (40–100 µg/mL)	> 1062 µmol/L (> 150 µg/mL)
Flecainide	0.5–2.4 µmol/L (0.2–1 µg/mL)	> 2.4 µmol/L (> 1 µg/mL)
Gentamicin	peak: 12–21 µmol/L (6–10 µg/mL) trough: < 4 µmol/L (< 2 µg/mL)	peak: > 24 µmol/L (> 12 µg/mL) trough: > 4 µmol/L (> 2 µg/mL)
Imipramine	535–1070 nmol/L (150–300 ng/mL)	> 1785 nmol/L (> 500 ng/mL)
Lidocaine	6–21 µmol/L (1.5–5 µg/mL)	> 21 µmol/L (> 5 µg/mL)
Lithium	0.5–1.5 mmol/L (0.5–1.5 mEq/L)	> 1.5 mmol/L (> 1.5 mEq/L)
Nortriptyline	190–570 nmol/L (50–150 ng/mL)	> 1900 nmol/L (> 500 ng/mL)
Phenobarbital	66–132 µmol/L (15–30 µg/mL)	> 177 µmol/L (> 40 µg/mL)
Phenytoin	40–80 µmol/L (10–20 µg/mL)	> 80 µmol/L (> 20 µg/mL)
Primidone	23–55 µmol/L (5–12 µg/mL)	> 69 µmol/L (> 15 µg/mL)

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