

Medicines Update

Appendix 1 – International Practices of Aminoglycoside Administration (IV infusion and IV injection)

Aminoglycoside Administration – IV Infusion				
	United Kingdom	United States	Australia	New Zealand
Gentamicin	<ul style="list-style-type: none"> BNFC [1] – infuse over 20-30 minutes or over 60 minutes for once daily regimens Medusa Injectable Medicines Guide [2] – infuse over 30 minutes or 60 minutes for once daily regimens. Alder Hey Children’s NHS Foundation Trust [3] – infuse over 20 minutes PIER network (Wessex) – infuse over 30 minutes. [4] 	<ul style="list-style-type: none"> Pediatric Injectable Drugs: the teddy bear book – infuse over 30 – 120 minutes. [5] Lexicom – infuse over 30 – 120 minutes (usual infusion time is 30 – 60 minutes). Longer infusion times (60 -120 minutes) with high doses. [6] 	<ul style="list-style-type: none"> Queensland Children’s Hospital – infuse over 30 minutes. [7] Perth Children’s Hospital – infuse over 30 minutes [8] The Children’s Hospital at Westmead – infuse over 30 minutes. [9] Australian Medicines Handbook – infuse over 15-30 minutes. [10] Sydney Children’s hospital – may be given as a 30 minute infusion. [11] 	<ul style="list-style-type: none"> Starship Child Health – infuse over 30 minutes for once daily dosing. [12] Notes on Injectable Drugs – for once daily dose regimens infuse over 30 minutes (preferred method). [13]
Amikacin	<ul style="list-style-type: none"> BNFC [1] Medusa Injectable Medicines Guide [2] Scottish perinatal network [14] – for neonates. Great Ormond Street Hospital – for 20-30 mg/kg once daily doses, infuse over 30 minutes.[15] Leeds Centre for Cystic Fibrosis (adult and paediatric) [16] – infuse over 30-60 minutes. Alder Hey Children’s NHS Foundation Trust [3] – infuse over 20 minutes. 	<ul style="list-style-type: none"> Pediatric Injectable Drugs: the teddy bear book – infuse over 30 – 60 minutes. [17] Lexicomp – Infuse over 30 – 60 minutes, 20 minutes has been reported in neonates (1st line). [6] 	<ul style="list-style-type: none"> Perth Children’s Hospital – infuse over 30 -60 minutes. [18] The Children’s Hospital at Westmead – infuse over 30-60 minutes in children and 1-2 hours in infants. [9] Australian Medicines Handbook – infuse over 15-30 minutes. [10] Queensland Children’s Hospital – infuse over 30 minutes – 1 hour, or 1-2 hours in neonates and infants. [7] 	<ul style="list-style-type: none"> Australasian Neonatal Medicines Formulary – infuse over 60 minutes. [19] Starship Child Health – infuse over 30 minutes for once daily dosing. [12] Notes on Injectable Drugs – infuse over 30 – 60 minutes (children) or 60 – 120 minutes in infants (preferred method).[20]
Tobramycin	<ul style="list-style-type: none"> BNFC [1] Medusa Injectable Medicines Guide – once daily regimens [2] UK Cystic Fibrosis (CF) Trust antibiotic working group guidelines [21] – for 10 mg/kg once daily, infuse over 30 minutes Leeds Centre for Cystic Fibrosis (adult and paediatric) [16] – infuse over 30 minutes Alder Hey Children’s NHS Foundation Trust [3] – for 7mg/kg once daily or 10mg/kg once daily in CF, infuse over 20 minutes. 	<ul style="list-style-type: none"> Pediatric Injectable Drugs: the teddy bear book – infuse over 20 – 60 minutes. [22] Lexicomp – Infuse over 20 to 60 minutes. [6] 	<ul style="list-style-type: none"> Perth Children’s Hospital – infuse over 20 – 40 minutes. [23] The Children’s Hospital at Westmead – infuse over 30 minutes. [9] Australian Medicines Handbook – infuse over 15-30 minutes. [10] Sydney Children’s hospital – may be given as a 30 minute infusion. [11] Queensland Children’s Hospital – infuse over 30 minutes. [7] 	<ul style="list-style-type: none"> Australasian Neonatal Medicines Formulary – infuse over 30 minutes (20-60 minutes). [24] Starship Child Health – infuse over 30 minutes for once daily dosing. [12] Notes on Injectable Drugs – for once daily dose regimen infuse diluted over 20 – 60 minutes, preferably 60 minutes (preferred method). (25)

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	United Kingdom	United States	Australia	New Zealand
Gentamicin	<ul style="list-style-type: none"> • BNFC [1] • Medusa Injectable Medicines Guide [2] • Alder Hey Children's NHS Foundation Trust [3] – for neonates and patients on multiple daily dosing regimens • Oxford University Hospitals NHS Trust [26] – for neonates • PIER network (Wessex) [4] 	<ul style="list-style-type: none"> • Lexicomp – not 1st line but it has been reported in paediatric patients receiving $\leq 4\text{mg/kg/dose}$ [6] 	<ul style="list-style-type: none"> • Sydney Children's hospital – may be administered as a slow push over 3-5 minutes. [11] • Perth Children's hospital – doses $\leq 120\text{mg}$ (higher doses may be given to those who are critically unwell) [8] • The Children's Hospital at Westmead (preferred method) [9] • Australian Medicines Handbook – doses $<120\text{mg}$ may be given as an IV injection over 3-5 minutes, although it acknowledges that bolus administration of all doses is widely used in clinical practice without evidence of clinical toxicity. [10] 	<ul style="list-style-type: none"> • Australasian Neonatal Medicines Formulary – over 5 minutes. [27] • Notes on Injectable Drugs – only if intermittent intravenous infusion is not possible – for once daily and multiple daily dose regimen (undiluted or in up to 20ml NaCl 0.9% over at least 3 minutes). [13]
Amikacin	<ul style="list-style-type: none"> • BNFC [1] • Medusa Injectable Medicines Guide [2] – for doses $\leq 15\text{ mg/kg}$ • UK Cystic Fibrosis Trust antibiotic working group guidelines [21] – for 10mg/kg 8 hourly • Alder Hey Children's NHS Foundation Trust [3] – for neonates but short infusion usually preferred • Great Ormond Street Hospital – for 10-15 mg/kg once daily doses [15] 	<ul style="list-style-type: none"> • Lexicomp – some reports of slow injection (over 1-5 minutes) but not 1st line. [6] 	<ul style="list-style-type: none"> • Australian Medicines Handbook - Doses $<500\text{mg}$ can be given as an IV injection over 3-5 minutes. [10] 	<ul style="list-style-type: none"> • Notes on Injectable Drugs – for multiple daily dose regimen administer undiluted or dilute in compatible fluid over 3 – 5 minutes (IV infusion is preferred). [19]
Tobramycin	<ul style="list-style-type: none"> • BNFC [1] • Medusa Injectable Medicines Guide – multiple-dose regimens [2] • UK Cystic Fibrosis Trust antibiotic working group guidelines [21] – for 3.3 mg/kg 8 hourly • Alder Hey Children's NHS Foundation Trust [3] – for neonates on extended interval dosing 	<ul style="list-style-type: none"> • Lexicomp – some reports of slow injection ($\leq 5\text{ minutes}$) but not 1st line. [6] 	<ul style="list-style-type: none"> • Sydney Children's hospital – may be administered as a slow push over 3-5 minutes. [11] • Perth Children's Hospital - doses $\leq 120\text{mg}$ [23] • Australian Medicines Handbook – doses $<120\text{mg}$ may be given as IV injection over 3-5 minutes. [10] 	<ul style="list-style-type: none"> • Notes on Injectable Drugs – for multiple daily dose regimes administer undiluted over 3 – 5 minutes. [24]

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