

CF Guidelines - IV Antibiotics

Notes:

Paediatric dose (if dose is also age dependent, then quoted as accordingly e.g. **P<5** = children younger than 5yrs; **P5-16** = children aged between 5 and 16). Maximum adult dose used by other CF centres is given – for adults of small build, lower doses may be appropriate, calculate paediatric weight based dose for reference. Regimes used by CF centre may exceed maximum recommended BNF dose.

od = once daily; bd = twice daily; tds = three times daily; qds = 4 times daily

Delivery:

Bolus (B) – given over 5 mins / syringe. Fluid for reconstitution in vial given. **Infusion (I)** – typically given over 30 mins. All volumes are for adult doses. Generally reconstitute according to bolus then make up to final volume. The pharmacokinetics of bacterial killing by b-lactam antibiotics, cephalosporins and carbapenems means that slow infusions (eg delivered over 3hrs) have greater efficacy than 30 minute infusions. This difference may be clinically relevant when treating resistant pathogens or when patient tolerance limits the antibiotic dose which may be used.

Indications:

Are not an exhaustive list of spectrum of activity:

- Burkholderia - Burkholderia cepacia complex (all genomovars).
- Ps.A - Pseudomonas aeruginosa.
- MR.PsA - Multi-resistant Pseudomonas aeruginosa refers more to clinical responsiveness of bacteria than to invitro resistance.

Comments:

Where side effects (**SE**) are included, they complement those listed in the BNF.

Drug	Dose	Delivery	Indication	Note / Comments
Amikacin	30 mg/kg od or 10 mg/kg tds	I: in N Saline	M.abscessus, Active vs Ps.A (Tobra/Gent better)	OD levels: Trough <3mg/l TDS levels: Trough <10mg/ml Peak: 25-30mg/ml
Aztreonam	P: 80mg/kg tds A: 4g tds BNF: 2g qds	B: 10ml water then make up to 20ml I: 20ml water then 250ml bag N Saline over 60 mins	PS.A, No activity against GM Pos bacteria	May be better tolerated in penicillin-sensitive pts than other b-lactams SE: breast tenderness/ lactation (raised prolaction)
Cefoxitin	P: 80mg/kg tds A: 4g tds BNF: 2g qds		M.abscessus, No anti Ps.A activity	Imported from the US & Canada may take weeks to arrive.
Ceftazidime	P: 200mg/kg devided tds A: 3g tds/qds (6g bd) BNF: 6g devided / day	B: 5ml water/1g I: 5ml water/1g then 100ml N Saline/3g	1st line for Ps.A	May be used bd as home IV for convenience. Nausea limits high doses.
Ciprofloxacin	P<5: 4-8mg/gk bd P5-16 :10mg/kg bd A: 400mg tds (BNF bd)		Ps.A	Beware drug interactions.Reduce aminophylline. Generally IV only if PO not tolerated (although some think IV more efficacious.)
Co- Amoxyclav (Augmentin)	A: 1.2g tds		S.Aureus, H.Influenzae	Use with care if CF liver disease.

Colistin	P: 25,000 units/kg tds A<40kg: 1MU tds A: 2MU tds	I: 10ml water then 100ml N Saline	Ps.A	SE: nausea, nephrotoxicity - avoid using with IV aminoglycosides or amphotericin.
Co-Trimoxazole (Septrin)	A: 1.44g bd	I: 500ml N Saline over 60-90 mins	Stenotrophomonas, M.R.Ps.A, Burkholderia	SE: Rash - discontinue.
Flucloxacillin		Not usually needed IV as oral well absorbed.		Significantly shortens lifespan of IV long lines.
Fosfomycin	A: 2-5g qds		Ps.A, M.R.S.A	Recently licensed in UK.
Gentamicin		Not generally used as less active against Ps.A than Tobramycin.		Has increased risk of nephrotoxicity and ototoxicity.
Imipenem	22mg/kg tds/qds max 90mg/kg/day, 1g qds		M.abscessus, Ps.A	More SE and tolerated less well than meropenem. In formulation with lignocaine useful if venous access lacking.
Meropenem	A: 2g tds or 3g bd	B: 20ml of water/1g I: for home IV's not stable at >1g/100ml	M.abscessus, Ps.A, Anaerobes	SE: headache
Metronidazole	A: 500mg tds		Anaerobes	Consider if foul smelling sputum esp if CXR cavities.
Tazobactam / Piperacillin (Tazocin)	A: 4.5g tds-qds	B: 20ml water I: 20ml water into 100ml N Saline	Ps.A	SE: frequent hypersensitivity reactions, thrombocytopenia, pancytopenia. Try to avoid use in CF.
Teicoplanin	400mg od for 3/7 then 200mg od	B: 3.2ml water per 200mg (infusion pack) I: into 100ml N Saline	M.R.S.A	
Temocillin	2g bd	B: 20ml water I: 100 ml N Saline	M.R. Ps.A, Burkholderia	
Tigecycline	100mg loading then 50mg every 12hours		M.abscessus, S.Aureus	Not licensed for use in paediatrics.
Ticarcillin / Clavulanic (Timentin)	P: 80-100mg/kg qds B: 3.2g qds	B: No I: 10ml water then into 100ml 5% dextrose or water over 40 mins	M.R.Ps.A, Burkholderia	May require extra insulin to cover dextrose load.
Tobramycin	10mg/kg od or 4mg/kg tds	B: only <=240mg in 10ml with N Saline I: 50-100ml N Saline	Ps.A, S.Aureus, Not Burkholderia,	Max dose 640mg daily
Vancomycin	P: 15mg/kg bd A: 1g bd		M.R.S.A	Monitor levels

Anti-fungals such as Amphotericin, Caspofungin, Flucytosine (with Amphotericin), Posaconazole and Voriconazole may all be needed in CF patients. They are not included in the tables of IV antibiotics or oral antimicrobials as there are no CF specific dose modifications or side effects. Local microbiology advice should be sought before use.

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