

Royal Hospital for Children Glasgow - Antibiotic Prophylaxis for Paediatric Surgery

General Principles for prescribing:

- Administer the pre-operative IV prophylaxis dose at induction, **no more** than 60 minutes prior to skin incision/intervention.
- If blood loss is greater than 25ml/kg (or 1500ml) repeat antibiotic doses after giving fluid replacement at full prophylactic dose except for gentamicin and teicoplanin. For gentamicin half prophylactic dose should be given. For teicoplanin half prophylactic dose should be given if blood loss (>25ml/kg or 1500ml) occurs within first hour of operation.
- To reduce the risk of post-operative drug errors, prescribe antibiotics on the ‘Once Only’ section of the drug kardex/HEPMA and also on the anaesthetic record.
- Check previous microbiology and seek opinion for patients on existing antimicrobial therapy or with complex microbiological history.
- Follow RHC Glasgow monographs or Medusa monograph for drug reconstitution and administration.
- Doses expressed in this guideline are for prophylactic dosing and may differ from treatment dosing.

Surgery	Procedure	Antibiotic	Induction dose	Intra-operative Doses	Post-operative Doses
ENT surgery	Saliva reduction surgery (submandibular duct transfer; salivary duct ligation)	Co-amoxiclav	30mg/kg (max 1.2g)	Neonate <7 days: Not required Neonate ≥7days/child: 4 hourly	Continue for 1 week post-op <b>Dose as per BNF-C</b>
		<b>Penicillin allergy:</b> Clindamycin	5mg/kg (max 1.2gram) infused over 15 minutes	Neonate <14 days: 6 hourly Neonate ≥14 days/child: 4 hourly	
	Open airway reconstruction surgery (laryngotracheal reconstruction; cricotracheal resection)	Co-amoxiclav <b>Or</b>	30mg/kg (max 1.2g)	Neonate <7 days: Not required Neonate ≥7days/child: 4 hourly	Switch to oral when possible and continue for 1 week post-op if reconstruction or recurrent/recent tracheostomy <b>Dose as per BNF-C</b>
		<b>If pseudomonas colonisation:</b> Piperacillin-Tazobactam	90mg/kg (max 4.5g) infused over 30minutes	Neonate/Child: 2 hourly	
		<b>Penicillin allergy:</b> Discuss with microbiology or Infectious Diseases			
	Closure of tracheocutaneous fistula	Co-amoxiclav	30mg/kg (max 1.2g)	Neonate <7 days: Not required Neonate ≥7days/child: 4 hourly	<b>As per surgeon discretion</b>
		<b>Penicillin allergy:</b> Clindamycin	5mg/kg (max 1.2gram) infused over 15 minutes	Neonate <14 days: 6 hourly Neonate ≥14 days/child: 4 hourly	
	Grommets	Ofloxacin (Exocin) eye drops – to be administered to the ear, single dose in theatre used at surgeon’s discretion			
All other surgery (tonsillectomy, adenoidectomy, tracheostomy, thyroglossal cyst excision, preauricular sinus, dermoid cyst, branchial anomaly, thyroidectomy, parotidectomy, lymph node biopsy etc)	No antibiotics used routinely				
General Surgery	Upper Gastrointestinal Surgery	Cefotaxime <b>Or</b>	50mg/kg (max 2g)	Neonate/Child: 4 hourly	Continue until 24hr post-op following cholecystectomy if cholecystitis. <b>Dose as per BNF-C/WoS Neonatal guidelines</b> For post splenectomy patients commence pneumococcal prophylaxis with penicillin post-op
		Co-amoxiclav	30mg/kg (max 1.2g)	Neonate <7 days: Not required Neonate ≥7days/child: 4 hourly	
		<b>Penicillin allergy:</b> Clindamycin <b>AND</b>	5mg/kg (max 1.2g) infused over 15 mins	Neonate <14 days: 6 hourly Neonate ≥14 days/child: 4 hourly	
		Gentamicin <b>(Caution re dosing in obesity)</b>	5mg/kg (max 400mg)	Not required	
	Lower Gastrointestinal Surgery	Cefotaxime <b>AND</b>	50mg/kg (max 2g)	Neonate/Child: 4 hourly	Not routinely required for elective surgery. 24-48 post-op prophylaxis can be considered based on level of contamination at the time of surgery. <b>Dose as per BNF-C.</b> <b>Consider treatment course if clinically indicated:</b> <b>&lt;28days old – as per WoS Neonatal guidelines.</b> <b>≥28days old – as per BNF-C</b>
		Metronidazole	<b>15mg/kg</b> (max 500mg) infused over 20-30 minutes	Neonate: Not recommended Child: <b>7.5mg/kg</b> 8 hourly	
		<b>Penicillin allergy:</b> Clindamycin <b>AND</b>	5mg/kg (max 1.2g) infused over 15 mins	Neonate <14 days: 6 hourly Neonate ≥14 days/child: 4 hourly	
		Gentamicin <b>(Caution re dosing in obesity)</b>	5mg/kg (max 400mg)	Not Required	
	Tumour surgery (Wilms, Neuroblastoma)	Cefotaxime <b>AND</b>	50mg/kg (max 2g)	Neonate/Child: 4 hourly	Not routinely required.  24-48 post-op prophylaxis can be considered based on level of contamination at the time of surgery.  <b>Dose as per BNF-C</b>
		Metronidazole	<b>15mg/kg</b> (max 500mg) infused over 20-30 minutes	Neonate: Not recommended Child: <b>7.5mg/kg</b> 8 hourly	
		<b>Penicillin allergy:</b> Clindamycin <b>AND</b>	5mg/kg (max 1.2g) infused over 15 mins	Neonate <14 days: 6 hourly Neonate ≥14 days/child: 4 hourly	
		Gentamicin <b>(Caution re dosing in obesity)</b>	5mg/kg (max 400mg)	Not required	
Orthopaedic Surgery	Procedures involving implantation metalwork and/or arthrotomy	Cefuroxime	50mg/kg (max 1.5g)	Neonates <7 days: 6 hourly Neonates ≥7 days/child: 4 hourly	Not required
		<b>Penicillin allergy:</b> Clindamycin	5mg/kg (max 1.2g) infused over 15 minutes	Neonate <14 days: 6 hourly Neonate ≥14 days/child: 4 hourly	Not required

For further information refer to full guideline on NHS GGC Paediatric Guideline page. For further advice contact ID consultant, duty microbiologist or paediatric antimicrobial pharmacist via switchboard.  
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Surgery	Procedure	Antibiotic	Induction dose	Intra-operative Doses	Post-operative Doses
Urology Surgery	Circumcision	Not required			Topical chloramphenicol if required
	Cystoscopy	Gentamicin (Caution re dosing in obesity)	2.5mg/kg (max 160mg)	Not required	For patients at high risk of UTI at surgeons discretion: Give a 3 day treatment course of antibiotics based on previous microbiology Review antibiotics if patient on prior to procedure.
		If patient has renal impairment or procedure requires botox: Cefotaxime	50mg/kg (max 2g)	Neonate/Child: 4 hourly	
		Penicillin allergy: Discuss with Microbiology/ID			
	Hypospadias repair (Repairs with Stent)	Gentamicin (Caution re dosing in obesity)	2.5mg/kg (max 160mg)	Not required	Not routinely required. For patients with retained instrumentation co-amoxiclav may be considered at the discretion of the surgeon until removal of instrumentation.
	Nephrectomy heminephrectomy Pyeloplasty Re implantation of ureter	Gentamicin (Caution re dosing in obesity)	2.5mg/kg (max 160mg)	Not required	Trimethoprim 2mg/kg at night until stent removed OR discuss with microbiology if previous trimethoprim resistance.
	Urological procedure that results in entry into the bowel	Cefotaxime AND	50mg/kg (max 2g)	Neonate/Child: 4 hourly	Not required
		Metronidazole	15mg/kg (max 500mg) infused over 20-30 mins	Neonate: Not recommended Child: 7.5mg/kg 8 hourly	
		Penicillin allergy: Clindamycin AND	5mg/kg (max 1.2g) infused Over 15 mins	Neonate <14 days: 6 hourly Neonate ≥14 days/child: 4 hourly	
		Gentamicin (Caution re dosing in obesity)	2.5mg/kg (max 160mg)	Not required	
Plastic Surgery	Trauma Soft Tissue Trauma	Flucloxacillin	25mg/kg (max 1g)	Neonate <21 days: 6 hourly Neonate ≥21 days/child: 4 hourly	Continue for 1 week for significantly contaminated wound. Dose as per BNF-C
		Compound fracture Co-amoxiclav AND	30mg/kg (max 1.2g)	Neonate <7days: Not required Neonate ≥7 days/child: 4 hourly	
		Gentamicin (if wound is very Contaminated) (Caution re dosing in obesity)	5mg/kg (max 400mg)	Not required	
		Penicillin allergy: Clindamycin AND	5mg/kg (max 1.2g) infused over 15 mins	Neonate <14 days: 6 hourly Neonate ≥14 days/child: 4 hourly	
		Gentamicin (if wound is very contaminated) (Caution re dosing in obesity)	5mg/kg (max 400mg)	Not required	
	Elective Soft Tissue Surgery	No prophylaxis unless complex prolonged procedure.			
		If complex: Flucloxacillin OR	25mg/kg(max 1g)	Neonate <21 days: 6 hourly Neonate ≥21 days/child: 4 hourly	Not required
		Cefuroxime	50mg/kg (max 1.5g)	Neonates <7 days: 6 hourly Neonates ≥7 days/child: 4 hourly	
		Penicillin allergy: Clarithromycin	7.5mg/kg (max 500mg) infused over 60 minutes	Neonate/Child: 8 hourly	Not required
	Elective Hand Or Foot Surgery Involving Bone	Flucloxacillin	25mg/kg (max 1g)	Neonate <21 days: 6 hourly Neonate ≥21 days/child: 4 hourly	Not required
		Penicillin allergy: Clindamycin	5mg/kg (max 1.2g) infused over 15 mins	Neonate <14 days: 6 hourly Neonate ≥14 days/child: 4 hourly	Not required
	Cleft lip and Palate Surgery	Co-amoxiclav	30mg/kg (max 1.2g)	Neonate <7 days: Not required Neonate ≥7days/child: 4 hourly	Up to 24 hours post-op For all intra-oral surgery continue PO Abx for 5 days post-op. Dose as per BNF-C
		Penicillin allergy: Clindamycin	5mg/kg (max 1.2g) infused over 15 mins	Neonate <14 days: 6 hourly Neonate ≥14 days/child: 4 hourly	
	Burns	No prophylaxis required			
	Application of Biobrane	Co-amoxiclav	30mg/kg (max 1.2g)	Neonate <7 days: Not required Neonate ≥7days/child: 4 hourly	Until biobrane adherent and microbiology available. Treatment may be required depending on microbiology. Dose as per BNF-C
		Penicillin allergy: Discuss choice with microbiology or ID			
	Excision and Grafting Surgery	Co-amoxiclav	30mg/kg (max 1.2g)	Neonate <7 days: Not required Neonate ≥7days/child: 4 hourly	Up to 24hr post-op depending on size/ complexity of injury. Treat based on microbiology/ cultures. Dose as per BNF-C
Penicillin allergy: Discuss choice with microbiology or ID					
(note: antimicrobial choices in this section do not offer good CNS penetration. If clinical infective concerns please refer to ID/ Microbiology for advice).	Craniotomy	Cefuroxime	50mg/kg (max 1.5g)	Neonates <7 days: 6 hourly Neonates ≥7 days/child: 4 hourly	Not required
		Penicillin allergy: Teicoplanin AND	<2months: 16mg/kg infused over 30minutes >2months: 10mg/kg (max 800mg)	Not required	Not required
		Gentamicin (Caution re dosing in obesity)	5mg/kg (max 400mg)	Not required	
	Clean contaminated (procedures that breach air sinuses, mastoid air cells or nasal or oral cavity	Co-amoxiclav	30mg/kg (max 1.2g)	Neonate <7 days: Not required Neonate ≥7days/child: 4 hourly	Not required
		Penicillin allergy: Clarithromycin AND	7.5mg/kg (max 500mg) infused over 60minutes	Neonate/Child: 8 hourly	Not required
		Metronidazole	15mg/kg (max 500mg) infused over 20-30 minutes	Neonate: Not recommended Child: 7.5mg/kg 8 hourly	
	CSF shunt	Teicoplanin: Single dose only.<2months 16mg/kg infused over 30mins; 2months and over 10mg/kg (max 800mg); Not required post-op			
	Spinal Surgery	Cefuroxime	50mg/kg (max 1.5g)	Neonates <7 days: 6 hourly Neonates ≥7 days/Child:4 hourly	Not required
		Penicillin allergy: Teicoplanin	<2months 16mg/kg infused over 30mins >2months 10mg/kg (max 800mg)	Not required	
	Cardiothoracic surgery	Please see separate guideline.			