GUIDELINE

Bone and Joint Infections – Paediatric Empiric Guidelines

Scope (Staff):	Medical, Nursing and Pharmacy
Scope (Area):	Perth Children's Hospital (PCH)

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this disclaimer

CLINICAL SCENARIO		Usual duration	DRUGS/DOSES			
			Standard Protocol	Known or Suspected MRSA[a]	Low Risk Penicillin allergy[b]	High Risk Penicillin allergy[b]
Complex or traumatic wounds ≥ 4 weeks old	Open fracture prophylaxis	24 to 72 hours	Ideally commence antibiotic prophylaxis within three hours of injury Systemic antibiotic prophylaxis should be given for a maximum of 24 to 72 hours. For non-severe injuries (Gustilo-Anderson type I or II) – cease antibiotics at time of definitive wound closure. For severe injuries (Gustilo-Anderson type III) – cease antibiotic at 72 hours or no more than 24 hours after definitive wound closure, whichever is shorter.			
			IV cefazolin 50 mg/kg/dose (to a maximum of 2 grams) 8 hourly **IF heavily contaminated ADD** IV metronidazole 12.5 mg/kg/dose (to a maximum of 500 mg) 12 hourly	As per standard protocol		clindamycin[c]
			Tetanus immunisation history needs to be reviewed. Consider the need for tetanus prophylaxis as per Tetanus prone wounds.			

CLINICAL SCENARIO		Usual duration	DRUGS/DOSES			
			Standard Protocol	Known or Suspected MRSA[a]	Low Risk Penicillin allergy[b]	High Risk Penicillin allergy[b]
Complex or traumatic wounds ≥ 4 weeks old	Open fracture prophylaxis: immersed in water (e.g. marine injuries or natural disaster)	24 to 72 hours	Ideally commence antibiotic prophylaxis within three hours of injury Systemic antibiotic prophylaxis should be given for a maximum of 24 to 72 hours. For non-severe injuries (Gustilo-Anderson type I or II) – cease antibiotics at time of definitive wound closure. For severe injuries (Gustilo-Anderson type III) – cease antibiotic at 72 hours or no more than 24 hours after definitive wound closure, whichever is shorter.			
			IV cefepime 50 mg/kg/dose (to a maximum of 2 grams) 8 hourly **IF heavily contaminated (e.g. agricultural injury or sewerge) ADD** IV metronidazole 12.5 mg/kg/dose (to a maximum of 500 mg) 12 hourly	**ADD** vancomycin[d] to standard protocol	As per standard protocol	clindamycin[c] **AND** ciprofloxacin[e]
			Tetanus immunisation history needs to be reviewed. Consider the need for tetanus prophylaxis as per Tetanus prone wounds.			
	Open fracture empiric therapy: suspected bone infection or deep soft tissue infection	Refer to ID	IV piperacillin/tazobactam 100 mg/kg/dose (to a maximum of 4 grams piperacillin component) 6 hourly	**ADD** vancomycin[d] to standard protocol	cefepime[f] **AND** metronidazole[g]	ciprofloxacin[e] **AND** clindamycin[c]
			Tetanus immunisation history needs to be reviewed. Consider the need for tetanus prophylaxis as per Tetanus prone wounds.			
	Open fracture empiric therapy: suspected bone infection or deep soft tissue infection **AND** immersed in water	Refer to ID	IV cefepime 50 mg/kg/dose (to a maximum of 2 grams) 8 hourly **AND** IV metronidazole 12.5 mg/kg/dose (to a maximum of 500 mg) 12 hourly	**ADD** vancomycin[d] to standard protocol	As per standard protocol	Discuss with Infectious Diseases
Osteomyelitis /Septic Arthritis	Osteomyelitis or septic arthritis <1 month old	Refer to ID	IV cefotaxime (doses as per neonatal guidelines) Discuss all neonates with Infectious Diseases	**ADD** vancomycin[d] to standard protocol	As per standard protocol	Discuss with Infectious Diseases

CLINICAL SCENARIO		Usual duration	DRUGS/DOSES			
			Standard Protocol	Known or Suspected MRSA[a]	Low Risk Penicillin allergy[b]	High Risk Penicillin allergy[b]
Osteomyelitis /Septic Arthritis	Uncomplicated osteomyelitis or septic arthritis ≥1 months old	3* days IV Min. 3 weeks total	IV cefazolin 50 mg/kg/dose (to a maximum of 2 grams) 8 hourly **OR** IV flucloxacillin 50 mg/kg/dose (to a maximum of 2 grams) 6 hourly	**ADD** vancomycin[d] to standard protocol	cefazolin[h]	vancomycin[d]
			Consider oral switch to cefalexin[i]			
	Uncomplicated osteomyelitis or septic arthritis ≥1 months old from an area with high MRSA rate (including Kimberley, Pilbara and Goldfields)	3* days IV Min. 3 weeks total	IV cefazolin 50 mg/kg/dose (to a maximum of 2 grams) 8 hourly **OR** IV flucloxacillin 50 mg/kg/dose (to a maximum of 2 grams) 6 hourly **ADD to either agent** IV vancomycin 15 mg/kg/dose (to a maximum initial dose of 750 mg) 6 hourly	As per standard protocol	cefazolin[h] **AND** vancomycin[d]	vancomycin[d]
			Consider oral switch to cotrimoxazole[j] or cefalexin[i] (if proven susceptible)			
	Osteomyelitis or septic arthritis (≥1 month old) that is: i) Multifocal **OR** ii) With pneumonia or myositis **OR** iii) Requiring Paediatric Critical Care (PCC) admission	Refer to ID	IV flucloxacillin 50 mg/kg/dose (to a maximum of 2 grams) 6 hourly **AND** IV vancomycin 15 mg/kg/dose (to a maximum initial dose of 750 mg) 6 hourly	As per standard protocol	cefazolin[h] **AND** vancomycin[d]	vancomycin[d] **AND** clindamycin[c]
			All patients with sepsis/disseminated infection requiring PCC admission should be discussed with infectious diseases or clinical microbiology services.			

a. Children known or suspected to be colonised with methicillin-resistant *Staphylococcus aureus* (MRSA) may need to have their therapy/prophylaxis modified. Children suspected of having MRSA include:
   1. Children previously colonised with MRSA. Check for MicroAlert B or C on iCM.
   2. Household contacts of MRSA colonised individuals
   3. In children who reside in regions with higher MRSA rates (e.g. Kimberley, Pilbara and Goldfields) a lower threshold for suspected MRSA should be given
   4. Children with recurrent skin infections or those unresponsive to ≥ 48 hours of beta-lactam therapy. For further advice, discuss with Infectious Diseases

b. Refer to the ChAMP Beta-lactam Allergy Guideline:
   - Low risk allergy: a delayed rash (>1hr after initial exposure) without mucosal or systemic involvement (without respiratory distress and/or cardiovascular compromise).

- High risk allergy: an immediate rash (<1hr after exposure); anaphylaxis; severe cutaneous adverse reaction {e.g. Drug Rash with Eosinophilia and Systemic Symptoms (DRESS) and Stevens – Johnson syndrome (SJS) / Toxic Epidermal Necrolysis (TEN)} or other severe systemic reaction.

c. IV clindamycin **15 mg/kg/dose** (to a maximum of 600 mg) 8 hourly.

d. IV vancomycin **15 mg/kg/dose** (to a maximum initial dose of 750mg) 6 hourly. Therapeutic drug monitoring required.

e. IV ciprofloxacin **10 mg/kg/dose** (to a maximum of 400 mg) 8 hourly. ChAMP approval required

f. IV cefepime **50 mg/kg/dose** (to a maximum of 2 grams) 8 hourly.

g. IV metronidazole **12.5 mg/kg/dose** (to a maximum of 500 mg) 12 hourly.

h. IV cefazolin **50 mg/kg/dose** (to a maximum of 2 grams) 8 hourly.

i. Oral cefalexin **40 mg/kg/dose** (to a maximum of 1500 mg) 8 hourly.

j. Oral cotrimoxazole **5 mg/kg/dose of trimethoprim component 8 hourly;** (maximum of 480 mg trimethoprim component per dose). Folic acid 2.5 to 10 mg orally once daily should be added for courses greater than 1 week.

* For the treatment of osteomyelitis children usually require a shorter duration than adults as their bones have excellent blood supply. Intravenous therapy should generally be continued for 3 days or until blood culture results are negative, the child is afebrile and has clinically improved and C-reactive protein (CRP) or erythrocyte sedimentation rate (ESR) is decreasing. Total intravenous/oral duration is for a minimum of 3 weeks.

Related CAHS internal policies, procedures and guidelines
Antimicrobial Stewardship Policy (Medication Management Manual)
ChAMP Empiric Guidelines

References and related external legislation, policies, and guidelines
1. Antibiotic Writing Group. Therapeutic Guidelines - Antibiotic. West Melbourne: Therapeutic Guidelines Ltd; 2022. Available from: https://tgldcdp-tg-org-au.pklibresources.health.wa.gov.au/etgAccess.

This document can be made available in alternative formats on request.

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