MONOGRAPH	
Cefotaxime Monograph - Paediatric	
Scope (Staff):	Medical, Nursing, Pharmacy
Scope (Area):	Perth Children's Hospital (PCH)

This document should be read in conjunction with this DISCLAIMER

DESCRIPTION	• Cefotaxime is a 3rd generation broad spectrum cephalosporin, it interferes with bacterial cell wall peptidoglycan synthesis by binding to penicillin-binding proteins resulting in cell lysis.(1, 2)
INDICATIONS AND RESTRICTIONS	• Cefotaxime is active against the majority of community-associated enteric Gram-negative rods, beta-haemolytic Streptococci, *Streptococcus pneumoniae* and methicillin susceptible *Staphylococcus aureus* (MSSA).(3, 4) • Ceftriaxone is preferred to cefotaxime in all patients except neonates. **IV: Monitored (orange) antibiotic** • If the use is consistent with a standard approved indication, this must be communicated to ChAMP by documenting that indication on all prescriptions (inpatient and outpatient). • The ChAMP team will review if ongoing therapy is required and/or if the order does not meet ChAMP Standard Indications. • If use is not for a standard approved indication, phone approval must be obtained from ChAMP before prescribing.
CONTRAINDICATIONS	• Cefotaxime is generally contraindicated in patients with a history of high risk allergy to cephalosporins.(1, 2, 5, 6)
PRECAUTIONS	• Cefotaxime may be prescribed in selected patients with high risk allergy to another Beta-lactam sub-class (e.g. some penicillins, carbapenems) in discussions with immunology. • In patients with a previous low risk reaction to cefotaxime or another cephalosporin (delayed rash [>1hr after initial exposure] without mucosal or systemic involvement) the risk of subsequent reaction is low. Re-challenge may be acceptable in discussion with immunology • Rapid IV injection has resulted in life-threatening cardiac arrhythmias; ensure IV injections are given over a minimum of 3 to 5 minutes.(1, 2, 7)

	• Ensure the required dose reductions are used in renal impairment. There is an increased risk of seizures if high doses are used in renal impairment.[8]
FORMULATIONS	**Available at PCH:** • 1 gram powder for injection vial **Other formulations available:** • 500mg powder for injection vial (multiple generic brands). • 2 gram powder for injection vial (multiple generic brands).
DOSAGE	• The doses listed below fall within the standard range. • Higher doses may be prescribed for certain situations in consultation with an infectious diseases or clinical microbiology consultant. **Neonates (less than 30 days old):** • Please refer to neonatal clinical care drug protocols **IV (1 month to 18 years):** • **Usual dose:** 25-50mg/kg/dose (to a maximum of 2gram) 8 hourly.[1, 9] • **Severe infections (e.g. meningitis):** 50mg/kg/dose (to a maximum of 2grams) 6 hourly.[1, 9]
DOSAGE ADJUSTMENT	**Dosage adjustment required in renal impairment:** • To calculate the estimated glomerular filtration rate (eGFR) use the formula available via the following link.[4] This formula should only be used for children older than one year $eGFR\ (mL/min/1.73m^2) = \frac{36.5 \times height\ (in\ cm)}{Serum\ creatinine\ (micromol/L)}$ • Dosage adjustment may be required in cases of impaired renal function (with creatinine clearance of less than 50 mL/min). • eGFR: 30-50mL/minute: 100% dose given 8 to 12 hourly • eGFR: 10-29 mL/minute: 100% dose given 12 hourly • eGFR: <10mL/minute: 100% dose given 24 hourly.[2, 8] **Dosage adjustment required in hepatic impairment:** • No dosage adjustments are required for hepatic impairment. • If concomitant renal impairment, use the renal dose adjustments stated above.[2]
RECONSTITUTION	**IV:** • Reconstitute each 1gram vial with 9.6mL of water for injection to give a final concentration of 100mg/mL.[7] • Further dilution may be required for administration (see below

	for further information).[7]
ADMINISTRATION	**IV injection:** • Dilute to 100mg/mL or weaker and give by slow IV injection over 3 to 5 minutes.[7] • Note: life threatening arrhythmias have occurred with rapid IV injection (when administered over 1 minute). Ensure IV injections are given over 3 to 5 minutes.[1, 2, 7] **IV infusion:** • Dilute to 40mg/mL or weaker with compatible fluid and infuse over 15 to 30 minutes.[7]
MONITORING	• Renal, hepatic and haematological function should be monitored weekly with prolonged therapy (i.e. longer than 7 days).[1, 2, 6, 10]
ADVERSE EFFECTS	**Common:** diarrhoea, nausea, vomiting, pain and inflammation at injection site, rash, headache, dizziness, allergy, *Clostridium difficile*-associated disease.[1, 5] **Rare:** life-threatening arrhythmias with rapid IV administration, neurotoxicity (e.g. confusion, seizures, encephalopathy) especially with high doses and/or renal impairment, blood dyscrasias (e.g. neutropenia), thrombocytopenia, bleeding, renal impairment, immunologic reactions (including eosinophilia, drug fever, anaphylaxis, angioedema, urticaria, haemolytic anaemia, Stevens-Johnson syndrome, toxic epidermal necrolysis, interstitial nephritis, arthritis, serum sickness-like syndrome).[1, 5]
COMPATIBLE FLUIDS	• Glucose 5% and 10% • Sodium chloride 0.9% • Glucose/sodium chloride solution • Hartmann's.[7]
STORAGE	• Store vials below 25˚C and protect from light.[7] • Store syringes prepared by Pharmacy Compounding Service (PCS) between 2 and 8˚C. • Reconstituted solutions should be protected from light.
INTERACTIONS	**Cefotaxime may interact with other medications; please consult PCH approved references (e.g. Clinical Pharmacology), your ward pharmacist or Pharmacy on extension 63546 for more information.** • IV aminoglycoside antibiotics are inactivated by IV penicillins and cephalosporins. • Aminoglycoside antibiotics are rapidly bactericidal and should be administered first. The line should then be flushed well with

	a compatible fluid and the penicillin administered.[5, 7] • Care should be taken and renal function monitored when used with other nephrotoxic drugs (e.g. aminoglycosides or potent diuretics) due to an increased risk of neurotoxicity.[1] • Cefotaxime may affect platelet aggregation and prolong bleeding time. Care should be taken when used in conjunction with other medications that may affect the clotting process.[5]
COMMENTS	• Each gram of cefotaxime contains 48mg (2.1mmol) of sodium.[7] • Cefotaxime has good CNS penetration and is widely distributed into many body fluids and tissues (including; liver, kidneys, bone, sputum, pleural and synovial fluid).[2]
MANUFACTURER SAFETY DATA SHEET (SDS)	To access to the Manufacturer SDS for this product, use the following link to ChemAlert.

Please note: The information contained in this guideline is to assist with the preparation and administration of **cefotaxime**. Any variations to the doses recommended should be clarified with the prescriber prior to administration

Related CAHS internal policies, procedures and guidelines
Antimicrobial Stewardship Policy
ChAMP Empiric Guidelines and Monographs
KEMH Neonatal Medication Protocols

References and related external legislation, policies, and guidelines

1. Rossi S, editor. Australian Medicines Handboook 2019. Adelaide, S. Aust.: Australian Medicines Handbook; 2019.
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4. M Grayson (editor). Kucers' The Use of Antibiotics. 6th ed. London: Edward Arnold Ltd; 2010.
5. Paediatric Formulary Committee. BNF for Children: 2016. London: BMJ Group Pharmaceutical Press; 2019.
6. Micromedex 2.0 [Internet]. Truven Health Analytics. 2019 [cited 11/09/2019].
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Collingwood: The Society of Hospital Pharmacists of Australia; 2019.

8. Phelps S Hagemann T Lee K Thompson A. Pediatric Injectable Drugs: The Teddy Bear Book. 11th Edition ed. Maryland: American Society of Health-System Pharmacists.
9. Royal Australian College of General Practitioners, Pharmaceutical Society of Australia, Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists. AMH: Children's Dosing Companion. Adelaide: Australian Medicines Handbook Pty Ltd; 2019.
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