



GUIDELINE	
<b>Urinary Tract Infections – Paediatric Empiric Guidelines</b>	
<b>Scope (Staff):</b>	Clinical Staff – Medical, Nursing, Pharmacy
<b>Scope (Area):</b>	Perth Children's Hospital (PCH)

**This document should be read in conjunction with this [DISCLAIMER](#)**

CLINICAL SCENARIO	Usual duration	DRUGS/DOSES			
		Standard Protocol	Known or Suspected MRSA <sup>a</sup>	Low Risk Penicillin allergy <sup>b</sup>	High Risk Penicillin allergy <sup>b</sup>
Urinary Tract Infection < 1 month		IV amoxicillin <b>AND</b> IV gentamicin (doses as per <a href="#">neonatal guidelines</a> ).	As per standard protocol	cefotaxime <sup>c</sup>	Discuss with ID or Microbiology service
Urinary Tract Infection (≥ 3 months old and systemically well)	In children who have previously isolated resistant gram negative bacteria (e.g. <i>Pseudomonas aeruginosa</i> , ESBL containing Gram negative bacteria), contact infectious diseases / clinical microbiology for therapeutic advice.				
	3-5 days	Oral <a href="#">cefalexin</a> 20mg/kg/dose (to a maximum of 750mg) 8 hourly.  <b>OR</b> Oral <a href="#">cotrimoxazole</a> 4mg/kg (to a maximum of 160mg trimethoprim component) 12 hourly.  <b>OR</b> Oral <a href="#">amoxicillin/clavulanic acid</a> 25mg/kg/dose (to a maximum 875mg amoxicillin component) 12 hourly.	As per standard protocol.	<a href="#">cefalexin</a> <sup>d</sup>	<a href="#">cotrimoxazole</a> <sup>e</sup>
Urinary Tract Infection i) All children ≥ 1 month and < 3 months, OR ii) Children ≥ 3 months and systemically unwell	In children who have previously isolated resistant gram negative bacteria (e.g. <i>Pseudomonas aeruginosa</i> , ESBL containing Gram negative bacteria), contact infectious diseases/ clinical microbiology for therapeutic advice				
	7-10 days (IV and oral)	IV <a href="#">amoxicillin</a> 50mg/kg/dose (to a maximum of 1 gram) 6 hourly. <b>AND</b> IV <a href="#">gentamicin</a> <sup>f</sup>	As per standard protocol.	<a href="#">ceftriaxone</a> <sup>g</sup>	Discuss with ID or Microbiology service.
Urinary Tract Infection prophylaxis children ≥ 1 month	Antibiotic prophylaxis is not routinely recommended for children following their first episode of a urinary tract infection, but may be considered for children with severe or recurrent UTI's. In children who have previously isolated resistant gram negative bacteria (e.g. <i>Pseudomonas aeruginosa</i> , ESBL containing gram negative bacteria), contact infectious diseases/ clinical microbiology for advice on prophylaxis.				
	N/A	Oral <a href="#">cotrimoxazole</a> 2mg/kg (to a maximum of 80mg trimethoprim component) 24 hourly at night. <b>OR</b> Oral <a href="#">cefalexin</a> 12.5mg/kg (to a maximum of 250mg) at night.	As per standard protocol.	<a href="#">cefalexin</a> <sup>h</sup>	<a href="#">cotrimoxazole</a> <sup>i</sup>


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		Standard Protocol	Known or Suspected MRSA <sup>a</sup>	Low Risk Penicillin allergy <sup>b</sup>
Epididymo-orchitis (If urinalysis negative)	0 days	Antibiotic therapy is not required- treat symptomatically.		
Epididymo-orchitis (If urinalysis positive)	14 days (IV and oral)	Treat as for Urinary Tract Infection in children $\geq$ 3 months and systemically unwell. For adolescent patients, consider sexually acquired infection and alter therapy accordingly. <sup>i</sup>		

- a. Children known or suspected to be colonised with MRSA may need to have their therapy/prophylaxis modified. Children suspected of having MRSA include:
  - (i) Children previously colonised with MRSA
  - (ii) Household contacts of MRSA colonised individuals
  - (iii) In children who reside in regions with higher MRSA rates (e.g. Kimberley and the Pilbara) a lower threshold for suspected MRSA should be given
  - (iv) Children with recurrent skin infections or those unresponsive to  $\geq$  48 of beta-lactam therapy. For further advice, discuss with Microbiology or ID service
- 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. Use doses as per [neonatal guidelines](#) for patients less than 1 month of age.
- d. Oral **cefalexin 20mg/kg/dose** (to a maximum of 750mg) 8 hourly.
- e. Oral **cotrimoxazole 4mg/kg/dose** (equivalent to 0.5mL/kg/dose of mixture), trimethoprim component, to a maximum of 160mg, 12 hourly.
- f. IV/IM **gentamicin** Children  $\geq$  1 month old to 10 years old: 7.5mg/kg ONCE daily to a maximum of 320mg. Children >10 years to 18 years: 6-7mg/kg ONCE daily to a maximum of 560mg. Therapeutic drug monitoring required.
- g. IV **ceftriaxone 50mg/kg/dose** to a maximum of 2g, once daily.
- h. Oral **cefalexin 12.5mg/kg/dose** (to a maximum of 250mg) given at once daily at night.
- i. Oral **cotrimoxazole 2mg/kg/dose** (equivalent to 0.25mL/kg/dose of mixture), trimethoprim component, to a maximum of 160mg, given once daily at night.
- j. For prepubertal boys with epididymo-orchitis, perform urinalysis; more than 80% of cases in these patients are not bacterial and do not require antibiotic therapy. If urinalysis is negative for leucocyte esterase and nitrite, treat the child symptomatically (paracetamol or nonsteroidal anti-inflammatory drugs). If the urinalysis is positive for leucocyte esterase or nitrite, take a midstream urine sample for culture and treat as for a urinary tract infection for 14 days.

Related internal policies, procedures and guidelines
<a href="#">Antimicrobial Stewardship Policy</a> <a href="#">ChAMP Empiric Guidelines</a> <a href="#">KEMH Neonatal Medication Protocols</a>

References
<p>1. Antibiotic Writing Group. Therapeutic Guidelines - Antibiotic. West Melbourne: Therapeutic Guidelines Ltd; 2019. Available from: <a href="http://online.tg.org.au.pklibresources.health.wa.gov.au/ip/">http://online.tg.org.au.pklibresources.health.wa.gov.au/ip/</a>.</p> <p>2. McMullan BJ, Andresen D, Blyth CC, Avent ML, Bowen AC, Britton PN, Clark JE, Cooper CM, Curtis N, Goeman E, Hazelton B, Haeusler GM, Khatami A, Newcombe JP, Osowicki J, Palasanthiran P, Starr M, Lai T, Nourse C, Francis JR, Isaacs D, Bryant PA, ANZPID-ASAP group. Antibiotic duration and timing of the switch from intravenous to oral route for bacterial infections in children: systematic review and guidelines. The Lancet. Infectious diseases 16 (8) : e139 - 52(2016)</p>

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