



**GUIDELINE**

**Surgical Prophylaxis: Orthopaedics, Plastics and Burns**

<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](#)

- Surgical prophylaxis refers to a **single** preoperative dose given 15 to 60 minutes prior to surgical incision unless otherwise stated.
- If **vancomycin** is required for surgical prophylaxis, the infusion **must be completed** one hour **prior** to surgical incision due to the extended distribution phase.

CLINICAL SCENARIO	DRUGS/DOSES			
	Standard Protocol	Known or Suspected MRSA <sup>a</sup>	Penicillin allergy <sup>b</sup> Delayed	Penicillin allergy <sup>b</sup> Immediate
<i>Staphylococcus aureus</i> colonisation	Patients undergoing elective orthopaedic surgery with insertion of prosthetic material should be screened for <i>Staphylococcus aureus</i> carriage and undergo decolonisation/ load reduction 5 days prior to surgery as appropriate. Refer to <a href="#">Guideline for Staphylococcal decolonisation (MRSA and MSSA)</a> for further information.			
Elective and emergency orthopaedic surgery <b>with</b> an implant	IV <a href="#">cefazolin</a> 30mg/kg (to a maximum of 2 grams) as a single dose Repeat dose if operation > 3 hours	<b>ADD</b> <a href="#">vancomycin</a> <sup>c</sup> to standard protocol	As per standard protocol	<a href="#">vancomycin</a> <sup>c</sup>
	When an infected prosthesis is suspected, antibiotic prophylaxis should ideally be delayed until after the collection of specimens			
Elective and Emergency orthopaedic surgery <b>without</b> an implant	Prophylaxis not routinely recommended			
Open fractures or soft tissue injury <b>with</b> wound soiling, contamination or devitalised tissue	IV <a href="#">piperacillin/tazobactam</a> 100mg/kg (to a maximum of 4 grams piperacillin component) Repeat dose if operation > 3 hours	<b>ADD</b> <a href="#">vancomycin</a> <sup>c</sup> to standard protocol	<a href="#">cefazolin</a> <sup>d</sup> <b>AND</b> <a href="#">metronidazole</a> <sup>e</sup>	Discuss with ID or Microbiology service
	Ongoing empiric therapy will be required for a minimum of 7 days. Longer therapy may be required in the event of an established bone infection. Refer to: <a href="#">Skin, soft tissue and orthopaedic infections</a> for advice on appropriate agents			

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CLINICAL SCENARIO	DRUGS/DOSES			
	Standard Protocol	Known or Suspected MRSA <sup>a</sup>	Penicillin allergy <sup>b</sup> Delayed	Penicillin allergy <sup>b</sup> Immediate
Open fractures <b>without</b> severe tissue damage or clinical evidence of infection +/- debridement.	IV <a href="#">cefazolin</a> 30mg/kg (to a maximum of 2 grams) as a single dose Repeat dose if operation > 3 hours	<b>ADD</b> <a href="#">vancomycin</a> <sup>c</sup> to standard protocol	As per standard protocol	<a href="#">clindamycin</a> <sup>f</sup>
	If debridement of the injury has occurred within 8 hours, systemic antibiotic prophylaxis should be given for 24 to 72 hours only. For patients where debridement occurs greater than 8 hours after the injury, presumptive therapy should be continued for 7 days. Refer to: <a href="#">Skin, soft tissue and orthopaedic infections</a> for advice on appropriate agents.			
Lower limb amputation	IV <a href="#">cefazolin</a> 30mg/kg (to a maximum of 2 grams) 8 hourly for a total of 24 hours. <b>ADD</b> IV <a href="#">metronidazole</a> 12.5mg/kg (to a maximum of 500mg) 12 hourly for a total of 24 hours if the limb is ischaemic.	<b>ADD</b> <a href="#">vancomycin</a> <sup>c</sup> to standard protocol	As per standard protocol	<a href="#">vancomycin</a> <sup>c</sup> <b>AND</b> <a href="#">gentamicin</a> <sup>g</sup> <b>ADD</b> <a href="#">metronidazole</a> <sup>e</sup> if ischaemic limb
	For patients already receiving antibiotics for an established infection additional surgical prophylaxis is not generally required. <a href="#">Metronidazole</a> <sup>e</sup> should be added if the regimen doesn't have sufficient anaerobic cover.			
Acute burns requiring surgical debridement.	IV <a href="#">cefazolin</a> 30mg/kg (to a maximum of 2 grams) as a single dose Repeat dose if operation > 3 hours	<b>ADD</b> <a href="#">vancomycin</a> <sup>c</sup> to standard protocol	As per standard protocol	<a href="#">vancomycin</a> <sup>c</sup> <b>AND</b> <a href="#">gentamicin</a> <sup>g</sup>
	If the burn is grossly contaminated with soil, follow the guideline for open fractures or soft tissue injury <b>with</b> wound soiling (above)			
	Patients with severe burns often have altered pharmacokinetics. If ongoing antibiotic therapy is required for an infected burn, antibiotic dosing should be adjusted accordingly. Contact infectious disease or pharmacy for advice.  For any ongoing surgical procedures antibiotic choice should be guided by local epidemiology and the results of cultures and susceptibility testing			
Spinal surgery (with or without instrumentation)	IV <a href="#">cefazolin</a> 30mg/kg (to a maximum of 2 grams) as a single dose Repeat dose if operation > 3 hours	<b>ADD</b> <a href="#">vancomycin</a> <sup>c</sup> to standard protocol	As per standard protocol	<a href="#">clindamycin</a> <sup>f</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 ≥ 48 of beta-lactam therapy. For further advice, discuss with Microbiology or ID service
- b) An immediate (IgE mediated) reaction is characterised by the development of urticaria, angioedema, bronchospasm or anaphylaxis within 1 to 2 hours of drug administration. Delayed reactions including maculopapular or morbilliform rashes, drug fever and cytopenias and are more in keeping with other forms of

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immunological reactivity. Isolated diarrhoea is not usually immune-mediated and does NOT contraindicate the future use of an antibiotic

- c) IV [vancomycin 15mg/kg](#) (to a maximum initial dose of 750mg) given via slow infusion. Repeat dose if operation > 6 hours (**repeat dosing not required in the setting of abnormal renal function**). Vancomycin infusion must be **completed** one hour **prior** to surgical incision due to the extended distribution phase.
- d) IV [cefazolin 50mg/kg](#) (to a maximum of 2 grams) as a single dose. Repeat dose if operation >3 hours
- e) IV [metronidazole 12.5mg/kg](#) (to a maximum of 500mg) as a single dose
- f) IV [clindamycin 15mg/kg](#) (to a maximum of 600mg) as a single dose
- g) IV [gentamicin 5mg/kg](#) (to a maximum of 320mg) as a single dose

<b>Related internal policies, procedures and guidelines</b>
<a href="#">Antimicrobial Stewardship Policy</a>
<a href="#">ChAMP empiric guidelines and monographs</a>

<b>References</b>
<ol style="list-style-type: none"> <li>1. Antibiotic Writing Group (2019). eTG complete. West Melbourne, Therapeutic Guidelines Ltd.</li> <li>2. Bratzler DW, et al. (2013). "Clinical practice guidelines for antimicrobial prophylaxis in surgery." <u>Am J Health-Syst Pharm</u> <b>70</b>: 195-283.</li> </ol>

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