



GUIDELINE

Surgical Prophylaxis: Vascular, Cardiovascular and Neurosurgery

Scope (Staff):	Clinical Staff – Medical, Nursing , 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](#)

- Surgical prophylaxis refers to a **single** preoperative dose given 0-60 minutes prior to surgical incision unless otherwise stated.
- If **vancomycin** is required for surgical prophylaxis, start the vancomycin infusion within the 120 minutes before surgical incision (ideally at least 15 minutes before incision) to ensure adequate blood and tissue concentrations at the time of incision and allow potential infusion-related toxicity to be recognised before induction of anaesthesia. The infusion can be completed after surgical incision¹.

CLINICAL SCENARIO (all ages)		DRUGS/DOSES			
		Standard Protocol	Known or Suspected MRSA ^a	Low Risk Penicillin Allergy ^b	High Risk Penicillin Allergy ^b
Vascular	Vascular surgery including placements of grafts or stents	IV cefazolin 30mg/kg (to a maximum of 2 grams) as a single dose. Repeat dose if operation > 3 hours.	ADD vancomycin ^c to standard protocol	As per standard protocol	vancomycin ^c
	Implantable Central Venous Access Device (CVAD) Placement	IV cefazolin 30mg/kg (to a maximum of 2 grams) as a single agent.	ADD vancomycin ^c to standard protocol	As per standard protocol	vancomycin ^c
	ALL patients require <i>Staphylococcus aureus</i> decolonisation for each insertion of a CVAD. Ideally decolonisation should be completed prior to the surgical procedure. If this is not possible, patients should commence decolonisation prior to surgery with the full five-day course completed post operatively. Refer to: Central Venous Access Devices (CVAD) and Midline Insertion and Management				

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CLINICAL SCENARIO (all ages)		DRUGS/DOSES			
		Standard Protocol	Known or Suspected MRSA ^a	Low Risk Penicillin Allergy ^b	High Risk Penicillin Allergy ^b
Cardiothoracic	Cardiac Surgery	IV cefazolin 30mg/kg (to a maximum of 2 grams). Repeat if operation > 3 hours OR if there is excessive blood loss Continue 8 hourly for a total of 24 hours.	ADD vancomycin ^d to standard protocol	As per standard protocol	vancomycin ^d AND gentamicin ^e
	Thoracotomy or thoracoscopic surgery into an uninfected surgical site	IV cefazolin 30mg/kg (to a maximum of 2 grams) as a single dose Repeat dose if operation > 3 hours.	ADD vancomycin ^c	As per standard protocol	vancomycin ^c AND gentamicin ^e
Neurosurgery	Routine neurosurgery including uncomplicated shunt insertions	Patients scheduled for an intracranial shunt should be vaccinated against <i>Streptococcus pneumoniae</i> ideally before the procedure. Refer to the Australian Immunisation Handbook for further information.			
		IV cefazolin 30mg/kg (to a maximum of 2 grams) as a single dose. Repeat dose if operation > 3 hours.	ADD vancomycin ^c to standard protocol	As per standard protocol	vancomycin ^c
	VP shunt insertion in high risk patients (neonates and infants with recurrent shunt complications)	IV vancomycin 15mg/kg/dose (to a maximum of 750mg, regardless of gestational age). Continue 8 hourly (neonates) or 6 hourly (infants) for 24 hours. AND IV cefotaxime 50mg/kg (to a maximum of 2 grams). Continue 8 hourly for a total maximum duration of 24 hours.	As per standard protocol	As per standard protocol	vancomycin ^d AND gentamicin ^f
		For neonates born pre-term refer to neonatal guidelines for ongoing doses.			
	Myelomeningocele repair – No VP shunt insertion	IV cefazolin 30mg/kg (to a maximum of 2 grams) as a single dose. Repeat dose if operation > 3 hours.	ADD vancomycin ^c to standard protocol	As per standard protocol	vancomycin ^c
	If concurrent VP shunt insertion, refer to; “VP shunt insertion in high risk patients” above				

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, Goldfields and the Pilbara) a lower threshold for suspected MRSA should be given

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- iv. Children with recurrent skin infections or those unresponsive to ≥ 48 hours 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 (>1 hr after initial exposure) without mucosal or systemic involvement (without respiratory distress and/or cardiovascular compromise).
 - **High risk allergy:** an immediate rash (<1 hr 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 [vancomycin 15mg/kg](#) (to a maximum initial dose of 750mg) given via slow infusion. Repeat dose if operation > 6 hours (**not required in setting of abnormal renal function**). Start the vancomycin infusion within the 120 minutes before surgical incision (ideally at least 15 minutes before incision) to ensure adequate blood and tissue concentrations at the time of incision and allow potential infusion-related toxicity to be recognised before induction of anaesthesia. The infusion can be completed after surgical incision.
- d) IV [vancomycin 15mg/kg](#) (to a maximum of 750mg) continued 6 hourly for 24 hours, adjust dose for patients with renal impairment.
- e) IV [gentamicin 5mg/kg](#) (to a maximum of 480mg) as a single dose only.
- f) IV [gentamicin 5mg/kg](#) (to a maximum of 320mg) as a single dose followed by standard treatment dosing as per ChAMP monograph for a total of 24 hours.

Related CAHS internal policies, procedures and guidelines


[Antimicrobial Stewardship Policy](#)

[ChAMP Empiric Guidelines](#)

References and related external legislation, policies, and guidelines

1. Antibiotic Writing Group. Therapeutic Guidelines - Antibiotic. West Melbourne: Therapeutic Guidelines Ltd; 2019. Available from: <http://online.tg.org.au.pklibresources.health.wa.gov.au/ip/>.
2. Bratzler DW, Dellinger EP, Olsen KM, Perl TM, Auwaerter PG, Bolon MK, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. Am J Health-Syst Pharm. 2013;70:195-283.

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

File Path:	W:\Safety & Quality\CAHS\CLOVERS MEDICAL Pharmacy\Procedures Protocols and Guidelines\ChAMP\Word		
Document Owner:	Head of Department – Infectious Diseases		
Reviewer / Team:	Children’s Antimicrobial Stewardship Program (ChAMP) Pharmacist		
Date First Issued:	August 2013	Last Reviewed:	February 2022
Amendment Dates:	April 2019, January 2021	Next Review Date:	February 2025
Approved by:	Drug and Therapeutics Committee	Date:	March 2022
Endorsed by:	Chair, Drug and Therapeutics Committee	Date:	March 2022
Standards Applicable:	NSQHS Standards:  NSMHS: N/A Child Safe Standards: N/A		

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Healthy kids, healthy communities

Compassion Excellence Collaboration Accountability Equity Respect

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