

Surgical Antibiotic Prophylaxis Guidelines

Orthopaedic Surgery (Joint Replacement)

Pre-Operative Considerations

Consider individual risk factors for every patient – need for prophylaxis, drug choice or dose may alter (e.g. immune suppression, presence of prostheses, allergies, obesity, diabetes, remote infection, available pathology or malignancy)

Pre-existing infections (known or suspected) – if present, use appropriate treatment regimen instead of prophylactic regimen for procedure. Doses should be scheduled to allow for re-dosing just prior to skin incision

Practice Points

Drug administration

- > IV bolus – should be timed \leq 60 minutes before skin incision (optimal 15 to 30 minutes). Commencing administration of any antibiotic after skin incision or completing administration of antibiotics > 60 minutes before incision reduces effectiveness.
- > IV infusion – should be commenced 30-120 minutes prior to skin incision. See below for vancomycin administration.

MRSA risk (defined as history of MRSA colonisation or infection, OR inpatient of high risk hospital or unit (where MRSA is endemic) for more than the last five days)

- > Add vancomycin to cefazolin (see vancomycin administration below)

Vancomycin administration

- > Give vancomycin 1g (1.5g for patients > 80kg actual body weight) started 30 to 120 minutes before surgical incision and given at a recommended rate of 1g per hour (1.5g over 90 minutes). Note: Infusion can be completed after skin incision.

Repeat doses

A single pre-operative dose is sufficient for most procedures, however repeat intra-operative doses are advisable:

- > for prolonged surgery (> 4 hours from the time of first preoperative dose) when a short-acting agent is used (e.g. cefazolin), OR
- > if major blood loss occurs, following fluid resuscitation

Obese patients

- > Consider increased dose of cefazolin (3g) if patient is obese (>120kg). Consult ID for advice.

Duration of prophylaxis should not exceed 24hrs, irrespective of presence of drains or catheters

Recommended Prophylaxis

	Recommended Prophylaxis	*High risk penicillin/cephalosporin allergy
Primary Total Hip Replacement (THR) OR Total Knee Replacement (TKR)	cefazolin 2g IV (child: 30mg/kg up to 2g) before incision, then 8-hourly for 2 more doses High risk of MRSA: ADD vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight)	vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight)
Patients requiring revision / re-operation	cefazolin 2g IV (child: 30mg/kg up to 2g) before incision, then 8-hourly for 2 more doses PLUS vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight) AND also (if cement is used) vancomycin added to tobramycin or gentamicin bone cement (\leq 5% w:w) (add vancomycin 500mg per 40g packet of bone cement)	vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight) AND (if cement is used) vancomycin added to tobramycin or gentamicin bone cement (\leq 5% w:w) (add vancomycin 500mg per 40g packet of bone cement)
Morcellised allografting at joint replacement	Add approximately 250mg vancomycin to bone cement for first femoral head equivalent, and 500mg for more than one head, and no more than 500mg to graft	
Routine arthroscopic procedures	No prophylaxis required (unless prosthesis is being inserted or patient is immunocompromised)	

Note: Pre-existing infections (known or suspected) – if present, use appropriate treatment regimen instead of prophylactic regimen for procedure. Doses should be scheduled to allow for re-dosing just prior to skin incision.

Post-Operative Care

Except where included above, post-operative antibiotics are NOT indicated unless infection is confirmed or suspected, regardless of the presence of surgical drains

If infection is suspected, consider modification of antibiotic regimen accordingly to clinical condition and microbiological results.

Definitions / Acronyms

DRESS	Drug rash with eosinophilia and systemic symptoms
ID	Infectious Diseases
IV	Intravenous
MRSA	Methicillin-resistant <i>Staphylococcus aureus</i>
SJS / TEN	Stevens-Johnson syndrome / Toxic epidermal necrolysis

* High Risk penicillin/cephalosporin allergy: History suggestive of high risk (eg. anaphylaxis, angioedema, bronchospasm, urticaria, DRESS/SJS/TEN)

References

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Endorsed by South Australian expert Advisory Group on Antibiotic Resistance (SAAGAR) March 2012, Last reviewed and amended May 2016.

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