

Surgical Antibiotic Prophylaxis Guidelines

Cardiac Surgery (adult)

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.

Local epidemiology - modify prophylaxis if there is a high local incidence of specific infections.

Practice Points

Drug administration

> IV bolus – should be timed ≤ 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 30-60 minutes prior to incision (e.g. gentamicin). See below for vancomycin administration.

MRSA risk (defined as history of MRSA colonisation or infection, OR inpatient of metropolitan or other high risk hospital 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).

Gentamicin administration

Dosing should be based on ideal body weight, provided ideal body weight is less than actual body weight.

Repeat doses

A single pre-operative dose is sufficient for most procedures however repeat intra-operative doses (2g cefazolin) are advisable:

- > for delayed or 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 requiring fluid resuscitation.

Obese patients

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

Recommended Prophylaxis

	Recommended Prophylaxis	*High risk penicillin/cephalosporin allergy
Coronary Artery Bypass Surgery (CABG)	<p>cefazolin 2g IV before skin incision</p> <p>THEN (post-operative)</p> <p>cefazolin 2g IV 8-hourly for a further 2 doses</p> <p>High risk of MRSA</p> <p>ADD vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight)</p>	<p>vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight)</p> <p>PLUS</p> <p>gentamicin 5mg/kg IV (based on ideal body weight)</p> <p>THEN (post-operative)</p> <p>vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight) 12 hours after first dose</p>
Routine Cardiac Valve Surgery	<p>cefazolin 2g IV before skin incision</p> <p>PLUS</p> <p>vancomycin 1 g IV infusion (1.5g for patients > 80kg actual body weight)</p> <p>THEN (post-operative)</p> <p>cefazolin 2g IV 8-hourly for a further 2 doses</p>	<p>vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight)</p> <p>PLUS</p> <p>gentamicin 5mg/kg IV (based on ideal body weight)</p> <p>THEN (post-operative)</p> <p>vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight) 12 hours after first dose</p>

Recommended Prophylaxis

	Recommended Prophylaxis	*High risk penicillin/cephalosporin allergy
High Risk Cardiac Valve Surgery Trans-catheter Aortic Valve Implantation (TAVI)	cefazolin 2g IV before skin incision PLUS depending on local epidemiology consider additional gentamicin 5mg/kg IV (based on ideal body weight) PLUS vancomycin 1 g IV infusion (1.5g for patients > 80kg actual body weight) THEN (post-operative) cefazolin 2g IV 8-hourly for 3 further doses (24 hours post-operatively) vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight) 12 hours after first dose	vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight) PLUS gentamicin 5mg/kg IV (based on ideal body weight) THEN (post-operative) vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight) 12 hours after first dose

Post-Operative Care

Post-operative antibiotics (> 48 hours from first dose) 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 according to clinical condition and microbiology results.

Definitions / Acronyms

CABG	Coronary Artery Bypass Graft
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
TAVI	Trans-catheter Aortic Valve Implantation

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

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