

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, urinary catheters or stents, 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.

Pre-operative urine screening: Where possible exclude or treat urinary infection prior to surgery. If surgery is urgent in the presence of confirmed infection or bacteriuria, use gentamicin 3mg/kg IV as a single preoperative dose. Higher doses may be required if systemic symptoms are present.

*For patients with cardiac conditions refer to [Antibiotic Prophylaxis Guidelines for Prevention of Endocarditis](#) for further information.

Practice Points

Drug administration

- > IV bolus – should be timed ≤ 60 minutes before skin incision (optimal 30 minutes). Administration after skin incision or > 60 minutes before incision reduces effectiveness
- > IV infusion – should be commenced 30-60 minutes prior to skin incision (e.g. metronidazole). 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) by IV infusion started 30-120 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.

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 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.

Recommended Prophylaxis

	Recommended Prophylaxis	*High risk penicillin/cephalosporin allergy
Open/laparoscopic procedures when: <ul style="list-style-type: none"> > urinary tract entered > urinary tract not entered but: <ul style="list-style-type: none"> • patient is at risk of post-operative infection (e.g. urinary tract obstruction/abnormalities); • prosthetic material is inserted; OR • bacteriuria cannot be excluded. 	cefazolin 2g IV (child: 30mg/kg up to 2g) PLUS gentamicin 2mg/kg IV (adults and children) <u>If risk of entry into bowel lumen then ADD:</u> metronidazole 500mg IV infusion (child: 12.5mg/kg up to 500mg) <u>High risk of MRSA :</u> 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) PLUS gentamicin 2mg/kg IV (adults and children) <u>If risk of entry into bowel lumen then ADD:</u> metronidazole 500mg IV infusion (child: 12.5mg/kg up to 500mg)
Open/laparoscopic procedures when urinary tract not entered and urine is sterile (e.g. vasectomy, scrotal surgery, varicocele ligation)	Prophylaxis NOT recommended	

Recommended Prophylaxis

	Recommended Prophylaxis	*High risk penicillin/cephalosporin allergy
Open prostatectomy / Robotic prostatectomy	cefazolin 2g IV PLUS gentamicin 2mg/kg IV If risk of entry into bowel lumen then ADD: metronidazole 500mg IV infusion (child: 12.5mg/kg up to 500mg) <u>High MRSA risk:</u> 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) PLUS gentamicin 2mg/kg IV If risk of entry into bowel lumen then ADD: metronidazole 500mg IV infusion (child: 12.5mg/kg up to 500mg)
Endoscopic procedures > removal of calculi > Extracorporeal Shock Wave Lithotripsy <u>only if high risk of infection</u> > specific risk for postoperative infection	cefazolin 2g IV (child: 30mg/kg up to 2g) <u>Known urinary MRSA colonisation:</u> ADD vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight)	gentamicin 2mg/kg IV (adults and children) <u>Known urinary MRSA colonisation:</u> ADD vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight)
Removal of calculi Transurethral resection of prostate (TURP) Stent insertion Ureterscopy/instrumentation of upper tract (incl. retrograde pyelogram)	gentamicin 2mg/kg IV (adults and children) OR (if gentamicin contraindicated) cefazolin 2g IV (child: 30mg/kg up to 2g) <u>Known urinary MRSA colonisation:</u> ADD vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight)	gentamicin 2mg/kg IV (adults and children) OR (if gentamicin contraindicated) trimethoprim 300mg PO 1hr prior to insertion <u>Known urinary MRSA colonisation:</u> ADD vancomycin 1g IV infusion (1.5g for patients > 80kg actual body weight)
Transperineal prostatic biopsy	cefazolin 2g IV <u>High MRSA risk:</u> 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)
Transrectal prostatic biopsy	ciprofloxacin 500mg PO as a single dose, 1-2 hours before procedure. Dose may be repeated 12 hours after the first dose if procedure delayed beyond 6 hours If there is a history of overseas travel (India, South East Asia, Southern Europe) in the last 6 months, the patient may be colonised with multi-resistant organisms. Contact ID/Clinical Microbiology for advice.	
Other clean procedures / diagnostic cystoscopy without manipulation of urinary tract	Prophylaxis NOT recommended	

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 according to clinical condition and microbiology results.

Definitions / Acronyms

DRESS	Drug rash with eosinophilia and systemic symptoms
ID	Infectious Diseases
IV	Intravenous
MRSA	Methicillin-resistant <i>Staphylococcus aureus</i>
PO	Per oral
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

- Antibiotic Expert Groups (2014). [Therapeutic Guidelines: Antibiotic. Version 15](#). Melbourne, Therapeutic Guidelines Limited.
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