Adult Antibiotic Prophylaxis in Urological Surgery

NHS Lanarkshire

General Principles of Prescribing for Surgical Prophylaxis

1. **Indication for prophylaxis** should comply with SIGN 104 guideline i.e when 'highly recommended', 'recommended' or 'considered' within guideline.
2. **Choice of agent:**
   - Adhere to recommended agent in table below where possible
   - Recommendations restrict the use of cephalosporins, clindamycin, quinolones and co-amoxiclav and use narrow spectrum agents where possible
   - Take recent culture results/antibiotic therapy and additional patient risk factors into account eg. morbid obesity, multiple previous surgeries, prosthetic material, diabetes. Discuss with Infection Specialist in a timely manner prior to surgery if multidrug resistance eg. Carbapenemase producing enterobacteriaceae (CPE) isolated
   - Check allergy status of patient including nature of allergy prior to prescribing
3. Recording of antibiotic on ''once only'' section of drug cardex and on Anaesthetic Record sheet
4. **Timing of antibiotic:**
   - ❖ Optimum timing of IV antibiotics is ≤60 minutes prior to skin incision, usually at induction of anaesthesia
   - ❖ Antimicrobial cover may be sub-optimal if given > 1 hour prior to skin incision or post skin incision
5. **Frequency of administration** should be single dose only unless:
   - ❖ Operation Prolonged (see re-dosing guidance table)
   - ❖ >1.5 litre intra-operative blood loss –Re-dose following fluid replacement (see re-dosing guidance table)
   - ❖ Specifically stated in following guideline

   Document in the medical notes the indication for antibiotic administration beyond 1st dose
6. **Decolonisation therapy** should be used prior to elective surgery if patient MRSA positive and antimicrobial prophylaxis should include cover for MRSA. See NHSL Policy for management of patients colonised or infected with MRSA.

Recommended Agents in Urological Surgery

- ❖ All dosing frequencies specified are based on eGFR>59ml/min/1.73^2; if renal impairment present consult individual drug product literature

Procedure	1st Choice	If Penicillin allergy	If MRSA Positive	Sign 104 Recommendations/ other comments
Transrectal prostatic biopsy	Gentamicin IV (see dosing table) OR Ciprofloxacin 750mg orally (60 min prior to procedure)	Gentamicin IV (see dosing table) OR Ciprofloxacin 750mg orally (60 min prior to procedure)	Gentamicin IV (see dosing table)	Recommended
Transurethral resection of the prostate (TURP)	Gentamicin IV (see dosing table) OR Ciprofloxacin 750mg orally (60 min prior to procedure and 12 hours post op)	Gentamicin IV (see dosing table)OR Ciprofloxacin 750mg orally (60 min prior to procedure and 12 hours post op)	Gentamicin IV (see dosing table)	Highly recommended
Endoscopic procedures	Gentamicin IV (see dosing table) OR Ciprofloxacin 750mg orally (60 min prior to procedure)	Gentamicin IV (see dosing table) OR Ciprofloxacin 750mg orally (60 min prior to procedure)	Gentamicin IV (see dosing table)	Recommended
Endoscopic ureteric stone fragmentation/removal	Gentamicin IV (see dosing table)	Gentamicin IV (see dosing table)	Gentamicin IV (see dosing table)	Recommended. Local recommendation – in high risk patients consider oral ciprofloxacin 500mg 12 hourly for up to 72 hours post op.
Percutaneous nephrolithotomy	Gentamicin IV (see dosing table)	Gentamicin IV (see dosing table)	Gentamicin IV (see dosing table)	Recommended if stone >20mm or pelvicalyceal dilation. Oral ciprofloxacin 500mg 12 hourly for one week pre-op recommended. Be guided by previous culture results if infected.
Shock wave lithotripsy	Gentamicin IV (see dosing table) OR Ciprofloxacin 750mg orally (60 min prior to procedure)	Gentamicin IV (see dosing table) OR Ciprofloxacin 750mg orally (60 min prior to procedure)	Gentamicin IV (see dosing table)	Recommended
Cystoscopy	If indicated Gentamicin IV (see dosing table) OR Ciprofloxacin 750mg orally (60 min prior to procedure)	If indicated Gentamicin IV (see dosing table) OR Ciprofloxacin 750mg orally (60 min prior to procedure)	Gentamicin IV (see dosing table)	Not routinely recommended. Indicated if there is a predisposition to infection or foreign body.
Prosthesis insertion	Flucloxacillin 1g IV + Gentamicin IV (see dosing table)	[1]Teicoplanin IV 400mg if <65kg OR 800mg if ≥65kg + Gentamicin IV (see dosing table)	[1]Teicoplanin IV 400mg if <65kg OR 800mg if ≥65kg + Gentamicin IV (see dosing table)	Add Metronidazole 500mg IV if manipulation of the bowel is intended.
Radical nephrectomy, Radical prostatectomy	Gentamicin IV (see dosing table) + Metronidazole 500mg IV	Gentamicin IV (see dosing table) + Metronidazole 500mg IV	Gentamicin IV (see dosing table) + Metronidazole 500mg IV	Recommended. Consider addition of amoxicillin IV 1g (or teicoplanin in penicillin allergy) if manipulating the bowel or high risk of infection
Radical cystectomy	Amoxicillin 1g IV 8hrly + Gentamicin IV (dose according to NHSL treatment protocol) + Metronidazole 500mg IV 8hrly	[1]Teicoplanin IV 400mg if <65kg or 800mg if ≥65kg + Gentamicin IV (dose according to NHSL treatment protocol) + Metronidazole 500mg IV 8hrly	[1]Teicoplanin IV 400mg if <65kg or 800mg if ≥65kg + Gentamicin IV (dose according to NHSL treatment protocol) + Metronidazole 500mg IV 8hrly	Recommended. Local recommendation – antibiotics for 3 days post op.
Transurethral resection (TUR) of bladder tumour	If indicated Gentamicin IV (see dosing table)	If indicated Gentamicin IV (see dosing table)	If indicated Gentamicin IV (see dosing table)	Not routinely recommended. Consider in large necrotic tumours.

IV Antibiotic Administration and Re-dosing Guidance

- ❖ Antibiotics should be given as a bolus injection where possible
- ❖ All re-dosing guidance based on pre-op eGFR>59ml/min/1.73^2; if renal impairment present consult individual drug product literature

[1] If treatment course required after teicoplanin prophylaxis convert to vancomycin (dose according to NHSL treatment protocol with 1st dose 12 hours after teicoplanin). Clinicians should be aware of potential for allergic reactions to teicoplanin

Antibiotic	Dose	Administration	Prolonged Surgery	>1.5L blood loss - Re-dose after fluid replacement
Amoxicillin 1g vial	1g	Reconstitute with 20ml of water for injection and give by slow IV injection over 3-5 minutes	Re-dose 1g after 4 hours	1g
Flucloxacillin 1g vial	1g	Re-constitute 1g vial with 15-20ml of water for injection and give by slow IV injection over 3-5 minutes	Re-dose 1g after 4 hours	1g
Gentamicin 80mg/2ml vial	See dosing table	No dilution required. Give by slow IV injection over 3-5 minutes.	If pre-op eGFR>59ml/min, re-dose at half prophylaxis dose after 8 hours	If repeat eGFR>59ml/min, re-dose at half prophylaxis dose
Metronidazole 500mg minibag	500mg	Already diluted. Give by IV infusion over 20 minutes.	Re-dose 500mg after 8 hours	500mg
Teicoplanin 400mg vial	400mg if patient weight <65kg or 800mg if ≥65kg	Re-constitute slowly with 3.14ml ampoule of water for injection provided and roll gently until dissolved. If foamy, stand for 15 minutes until foam subsides then give EACH vial by slow IV injection over 3-5 minutes.	DO NOT re-dose	200mg if patient weight <65kg or 400mg if ≥65kg

Dosing Table for Gentamicin Prophylaxis

- ❖ If eGFR<15ml/min/1.73m2, give HALF of dose recommended in table (1.5mg/kg ideal body weight).
- ❖ Review medication cardex prior to prescribing/administration of gentamicin. Avoid if patient has received gentamicin within previous 24 hours

Height		Gentamicin dose (mg) based on 3mg/kg Ideal Body Weight	
Feet/inches	Centimetres	Males	Females
4'8-4'10	142-149cm	160mg	140mg
4'11-5'3	150-162cm	180mg	160mg
5'4-5'10	163-179cm	240mg	200mg
5'11-6'2	180-189cm	300mg	260mg
6'3-6'8	190-203cm	300mg	300mg

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