

Surgical Antibiotic Prophylaxis (SAP) Guidelines

PRE-OPERATIVE CONSIDERATIONS

Timing of drug administration

- Slow IV bolus – should be given ≤ 60 minutes before skin incision (**ideally within 15 to 30 minutes prior**) before surgical incision. Administration after skin incision or > 60 minutes before incision reduces effectiveness
- IV infusion – should be timed to end ≤ 30 minutes before skin incision

Pre-existing infections (known or suspected) – For patients **on treatment course antibiotics** who undergo surgery for which SAP is indicated, **administer SAP as usual** unless treatment antibiotics are given **within 60 minutes** before surgery and cover appropriate organisms. **DO NOT administer more than ONE dose of gentamicin in a 24-hour period. DO NOT administer more than ONE dose of IV metronidazole in a 12-hour period.** Screening for MDR Gram negative organisms may be appropriate in patients at risk of faecal carriage of resistant organisms.

PROPHYLAXIS REGIMEN

Cutaneous Surgeries	First line regimen	Alternative regimen (Allergy: Immediate type or severe penicillin or cephalosporin hypersensitivity)
Excision of Skin lesions Excision of Lipoma	Prophylaxis generally NOT required (SAP may be considered at the discretion of operating surgeon e.g. flap involved, large area, multiple lesions, recurrent infections, contaminated wounds)	
Abdominal surgeries	First line regimen	Alternative regimen (Allergy: Immediate type or severe penicillin or cephalosporin hypersensitivity)
Gastric / duodenal / oesophageal (bypass, resection, ulcer oversew, oesophagectomy etc.)	If patient already started with empiric antibiotics for suspected infection use treatment regimen instead of prophylactic regimen. However, if treatment antibiotics are given longer than 60 minutes before surgery, administer SAP as usual. DO NOT administer more than ONE dose of gentamicin in a 24-hour period	
Hernia repair (with mesh insert) Gastric fundoplication	Cephazolin 2g IV (single dose only) bolus over 5 minutes	Teicoplanin 400mg slow IV over 5 minutes [Teicoplanin 800mg for patients > 80 kg] PLUS Gentamicin 3mg/kg IV (single dose only) bolus over 5 minutes [Use ideal body weight] [Roundoff to nearest 40mg; Use adjusted body weight for obese patients (Weight > 120 kg or BMI > 40). Max cap at 360mg]. If patient has any contraindications to Gentamicin, please consult ID.
Hernia repair (WITHOUT mesh)	Prophylaxis NOT recommended when mesh is not inserted	
Colorectal (colon or small bowel resection, revision of anastomosis or stoma, appendectomy etc.)	If patient already started with empiric antibiotics for suspected infection use treatment regimen instead of prophylactic regimen. However, if treatment antibiotics are given longer than 60 minutes before surgery, administer SAP as usual. DO NOT administer more than ONE dose of gentamicin in a 24-hour period DO NOT administer more than ONE dose of IV Metronidazole in a 12-hour period	
Exploratory laparotomy / division of adhesions Transanal resection/excision Haemorrhoidectomy Anal sphincterotomy Fistula repair	Cephazolin 2g IV (single dose only) bolus over 5 minutes PLUS Metronidazole 500mg IV (single dose only) infused over 20 minutes	Teicoplanin 400mg slow IV over 5 minutes [Teicoplanin 800mg for patients > 80 kg] PLUS Gentamicin 3mg/kg IV (single dose only) bolus over 5 minutes [Use ideal body weight] [Roundoff to nearest 40mg; Use adjusted body weight for obese patients (Weight > 120 kg or BMI > 40). Max cap at 360mg]. If patient has any contraindications to Gentamicin, please consult ID. PLUS Metronidazole 500mg IV (single dose only) infused over 20 minutes
Hepatobiliary surgery	First line regimen	Alternative regimen (Allergy: Immediate type or severe penicillin or cephalosporin hypersensitivity)
Biliary (cholecystectomy etc.)	If patient already started with empiric antibiotics for suspected infection use treatment regimen instead of prophylactic regimen. However, if treatment antibiotics are given longer than 60 minutes before surgery, administer SAP as usual. DO NOT administer more than ONE dose of gentamicin in a 24-hour period DO NOT administer more than ONE dose of IV Metronidazole in a 12-hour period	
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Pancreatic resection	Cephazolin 2g IV (single dose only) bolus over 5 minutes before incision PLUS Metronidazole 500mg IV (single dose only) infused over 20 minutes before incision	Teicoplanin 400mg slow IV over 5 minutes [Teicoplanin 800mg for patients > 80kg] PLUS Gentamicin 3mg/kg IV (single dose only) bolus over 5 minutes [Use ideal body weight] [Roundoff to nearest 40mg; Use adjusted body weight for obese patients (Weight > 120kg or BMI >40). Max cap at 360mg]. If patient has any contraindications to Gentamicin, please consult ID. PLUS Metronidazole 500mg IV (single dose only) infused over 20 min
Splenectomy Vaccination and post-splenectomy antibiotic prophylaxis may be required. Contact infection control.	Cephazolin 2g IV (single dose only) bolus over 5 minutes before incision	Teicoplanin 400mg slow IV over 5 minutes [Teicoplanin 800mg for patients > 80kg]
Breast and Endocrine surgery	First line regimen	Alternative regimen (Allergy: Immediate type or severe penicillin or cephalosporin hypersensitivity)
• Mastectomy with wide local excision OR axillary dissection • Mammoplasty	Cephazolin 2g IV (single dose only) bolus over 5 minutes before incision	Teicoplanin 400mg slow IV over 5 minutes [Teicoplanin 800mg for patients > 80kg]
• Adrenalectomy (open)	Cephazolin 2g IV (single dose only) bolus over 5 minutes before incision	Teicoplanin 400mg slow IV over 5 minutes [Teicoplanin 800mg for patients > 80kg]
• Adrenalectomy (Laparoscopic) • Thyroidectomy or similar	Prophylaxis not generally recommended	
Bariatric Surgery	First line regimen	Alternative regimen (Allergy: Immediate type or severe penicillin or cephalosporin hypersensitivity)
• Sleeve gastrectomy • Gastric bypass (see above)	Cephazolin 3g IV (single dose only) bolus over 5 minutes before incision	Teicoplanin 800mg slow IV over 5 minutes PLUS Gentamicin 3mg/kg IV (single dose only) bolus over 5 minutes. [Use ideal body weight] [Roundoff to nearest 40mg; Use adjusted body weight for obese patients (Weight > 120kg or BMI >40). Max cap at 360mg]. If patient has any contraindications to Gentamicin, please consult ID.

HISTORY OF MRSA COLONISATION OR INFECTION

Patients with a history of Methicillin-resistant Staphylococcus aureus (MRSA) colonisation or infection

Teicoplanin should be given **IN ADDITION to cephazolin**:

Teicoplanin 400mg IV over 5 minutes at induction [single dose] (800mg IV over 5 minutes for patients >80kg)

ADDITIONAL NOTES: DOSE/DURATION OF PROPHYLAXIS

If patient is on empirical antibiotic regimen prior to surgical procedure, please ensure that the antibiotics are given at the scheduled dosing time. In obese patients (BMI >40 or > 120kg), consider a larger dose of cephazolin 3g.

Prophylaxis should be no greater than 24 hours, with a single dose sufficing in most cases, even in the presence of a drain or urinary catheter. A **second dose of cephazolin** should be given after first dose if • procedure is extended beyond 4 hours or • blood loss is >1500mL. **A second dose of Teicoplanin, Gentamicin and Metronidazole is generally not required due to their long half life.**

Continuing antibiotic following surgery is not appropriate **unless infection is suspected** (e.g. gross spillage from viscus, devitalised viscus) or confirmed (e.g. pus or peritonitis) – **modify antibiotic regimen** appropriately according to treatment guidelines.

GENTAMICIN CONTRAINDICATIONS/PRECAUTIONS

Contraindications/precautions to gentamicin?

- A history of previous aminoglycoside-associated vestibular/auditory toxicity
- A history of a serious hypersensitivity reaction to aminoglycosides
- Myasthenia gravis
- Pre-existing vestibular / auditory impairment
- Renal impairment (< 40mL/min) or rapidly changing renal function / acute kidney injury
- A family history of aminoglycoside-induced auditory toxicity
- Advanced age (80 years or older)
- Pregnancy (Pregnancy Category D) & should only be used for life-threatening conditions under specialist advice
- Amyloidosis

Calculation of Ideal body weight for Gentamicin dosing

<https://tqldcdp.tg.org.au/calculator?type=Calculators#ibwcalc>

Calculation of Adjusted body weight for Gentamicin dosing in obese patients (BMI > 40 or weight > 120kg)

Adjusted Body Weight = Ideal Body Weight + [0.4 x (Actual Body Weight – Ideal Body Weight)]

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Version 2 (May 2019). <Adapted from PAH Surgical Antibiotics Guidelines version 1 Aug 2013, Other references: SA Surgical Guidelines 2013, Sunshine Coast Hospital and Health Service - Summary of Surgical Antibiotic Prophylaxis (SAP) Guidelines for Adults, Metro South Antimicrobial Stewardship Network - Gentamicin Dosing, Administration & Monitoring Guidelines for Adults for Empirical Therapy.