

Preoperative Considerations

Consider individual risk factors for every patient including the need for prophylaxis. Antibiotic choice/dose may need to be modified according to patient factors (e.g. immune suppression, presence of prostheses, allergies, renal function, obesity, malnutrition, diabetes, malignancy, infection at another site, colonisation with multi-drug resistant bacteria and available pathology).

Consider surgical wound classification (**clean, clean-contaminated, contaminated, dirty-infected**) when determining the need for, or choice of, antibiotic prophylaxis. Refer to [Surgical Antimicrobial Prophylaxis Prescribing Guideline](#) for further information.

Pre-existing infections (known or suspected) – if present, use appropriate treatment regimen instead of prophylactic regimen for procedure but ensure the treatment regimen has activity against the organism(s) most likely to cause postoperative infection. Adjust the timing of the treatment dose to achieve adequate plasma and tissue concentrations at the time of surgical incision and for the duration of the procedure - seek advice from ID or the AMS team if unsure.

Prophylaxis against enterococcal endocarditis is indicated for patients with specific cardiac conditions who are undergoing gastrointestinal endoscopic procedures for which surgical antibiotic prophylaxis is required. If the surgical antibiotic prophylaxis regimen does not include an antibiotic active against enterococci (e.g. amoxicillin, vancomycin) refer to [Antibiotic Prophylaxis for Prevention of Endocarditis in High Risk Patients](#) for appropriate add-on recommendations.

Prophylaxis against enterococcal endocarditis may also be required for patients with specific cardiac conditions who are undergoing gastrointestinal endoscopic procedures for which surgical antibiotic prophylaxis is not required if the patient has an established gastrointestinal infection – refer to [Antibiotic Prophylaxis for Prevention of Endocarditis in High Risk Patients](#) for further information.

Practice Points

Timing and administration of antibiotics

Surgical antibiotic prophylaxis must be administered before surgical incision to achieve effective plasma and tissue concentrations at the time of incision. Administration of any antibiotic after skin incision reduces effectiveness.

- > IV **cefazolin** can be given over 5 minutes and should be administered no more than 60 minutes before skin incision.
- > IV **gentamicin** can be given over 3 to 5 minutes and should be administered within 120 minutes before surgical incision.
- > IV **metronidazole** infusion can be given over 20 minutes and should be fully administered within 120 minutes of surgical incision. Maximum plasma and tissue concentration occurs at the conclusion of the infusion.
- > IV **vancomycin** infusion should be given at a rate of 1g over at least 60 minutes and 1.5g over at least 90 minutes. Vancomycin should be timed to begin 15 to 120 minutes before skin incision. This ensures adequate concentration at the time of incision and allows for any potential infusion-related toxicity to be recognised before induction. The infusion can be completed after skin incision.

Obese patients

- > **Cefazolin:** Consider increased dose of cefazolin (3g) for adult patients weighing more than 120kg.
- > **Gentamicin:** For adult patients with a [body mass index](#) 30 kg/m² or more, use [adjusted body weight](#) (up to a maximum of 100kg) to calculate the gentamicin dose.
- > **Vancomycin:** Consider increased dose of vancomycin (1.5g) for adult patients weighing more than 80kg.

High MRSA risk (defined as history of MRSA colonisation or infection OR frequent stays or a current prolonged stay in hospital with a high prevalence of MRSA OR residence in an area or aged care facility with high prevalence of MRSA OR current residence, or residence in the past 12 months, in a correctional facility):

- > Add vancomycin

Repeat dosing

A single preoperative dose is sufficient for most procedures; however repeat intraoperative doses are advisable:

- > for prolonged surgery (more than 4 hours from the time of first preoperative dose) when a short-acting agent is used (e.g. cefazolin dose should be repeated after 4 hours), OR
- > if major blood loss occurs (e.g. more than 1500 mL in adults), following fluid resuscitation.

When measuring the time to a second intraoperative dose, measure the interval from the time of the first preoperative dose rather than the surgical incision time.

Recommended Prophylaxis

| Procedure | Recommended Prophylaxis | High Risk Penicillin / Cephalosporin Allergy* |
|--|---|--|
| Insertion / revision of: <ul style="list-style-type: none"> > Percutaneous Endoscopic Gastrostomy/Jejunostomy (PEG/PEJ) > Percutaneous Radiologic Gastrostomy/Jejunostomy (PRG/PRJ) | cefazolin 2g IV <u>High risk of MRSA infection:</u> ADD vancomycin 1g IV infusion (1.5g for patients more than 80kg actual body weight) | vancomycin 1g IV infusion (1.5g for patients more than 80kg actual body weight) |

Recommended Prophylaxis

| Procedure | Recommended Prophylaxis | High Risk Penicillin / Cephalosporin Allergy* |
|--|---|---|
| Endoscopic Retrograde Cholangiopancreatography (ERCP) <ul style="list-style-type: none"> > Involving transpapillary or transmural drainage of pseudocysts > With evidence of biliary tract obstruction and only if complete biliary drainage may not be achieved > If the patient has communicating pancreatic cysts or pseudocysts | gentamicin 2mg/kg IV OR cefazolin 2g IV PLUS consider adding: metronidazole 500mg IV infusion <u>High risk of MRSA infection:</u> ADD vancomycin 1g IV infusion (1.5g for patients more than 80kg actual body weight) | gentamicin 2mg/kg IV PLUS consider adding: metronidazole 500mg IV infusion <u>High risk of MRSA infection:</u> ADD vancomycin 1g IV infusion (1.5g for patients more than 80kg actual body weight) |
| Endoscopic ultrasound-guided fine-needle aspiration of cystic lesions | metronidazole 500mg IV infusion PLUS either: cefazolin 2g IV OR gentamicin 2mg/kg IV <u>High risk of MRSA infection:</u> ADD vancomycin 1g IV infusion (1.5g for patients more than 80kg actual body weight) | metronidazole 500mg IV infusion PLUS gentamicin 2mg/kg IV <u>High risk of MRSA:</u> ADD vancomycin 1g IV infusion (1.5g for patients more than 80kg actual body weight) |
| All other procedures (with or without biopsy), e.g. <ul style="list-style-type: none"> > endoscopic ultrasound-guided fine-needle aspiration of solid lesions along the GI tract > diagnostic endoscopic ultrasound > endoscopy > colonoscopy > sigmoidoscopy > sclerotherapy > oesophageal stricture dilatation | Prophylaxis NOT recommended | |

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

Postoperative Care

Except where included above, postoperative 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

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|------------------|---|--------------|--|
| AMS | Antimicrobial Stewardship | DRESS | Drug rash with eosinophilia and systemic symptoms |
| GI | Gastrointestinal | ID | Infectious diseases |
| IV | Intravenous | MRSA | Methicillin-resistant <i>Staphylococcus aureus</i> |
| SJS / TEN | Stevens-Johnson syndrome / Toxic epidermal necrolysis | | |

References

- Antibiotic Expert Groups (2019). [Therapeutic Guidelines: Antibiotic. Version 16](#). Melbourne, Therapeutic Guidelines Limited.
- ASGE Standards of Practice Committee, Khashab, MA, Chithadi, KV, et al (2015). "Antibiotic prophylaxis for GI endoscopy". [Gastrointestinal Endoscopy](#) 81(1): 81-9.
- Bratzler, D., E. P. Dellinger, K. M. Olsen, T. M. Perl, P. G. Auwaerter, M. K. et al (2013). "Clinical practice guidelines for antimicrobial prophylaxis in surgery." [Am J Health Syst Pharm](#) 70: 195-283.
- Meyer GW. (2020). "Antibiotic prophylaxis for gastrointestinal endoscopic procedures". In: Saltzman JR (Ed), [UpToDate](#), Waltham, MA. [www.uptodate.com]. Accessed March 2021.

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