

Surgical Antimicrobial Prophylaxis Guidelines (adult)

Appendix 12: Otorhinolaryngology / Head & Neck Surgery

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 endocarditis is indicated for patients with specific cardiac conditions. 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** and IV **clindamycin** infusions can be given over 20 minutes. They should be fully administered within 120 minutes of surgical incision. Maximum plasma and tissue concentrations occur 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.

Dosing in patients with obesity

- > **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 and clindamycin after 6 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

Surgery	Recommended Prophylaxis	High Risk Penicillin / Cephalosporin Allergy*
Otorhinolaryngology Procedures		
Uncomplicated or minor clean procedures <ul style="list-style-type: none"> > uncomplicated ear surgery including tympanoplasty (not infected), otoplasty > uncomplicated nose or sinus surgery including septoplasty and turbinoplasty, endoscopic procedures (microlaryngoscopy, panendoscopy) > stapedectomy > tonsillectomy[‡] > adenoidectomy[‡] 	Prophylaxis NOT recommended <p>‡ Patients with specific cardiac conditions (e.g. prosthetic heart valve) undergoing these procedures require antibiotic prophylaxis for endocarditis - refer to Antibiotic Prophylaxis for Prevention of Endocarditis in Cardiac Patients for further information.</p>	
Hearing implant procedures, including cochlear implant	cefazolin 2 g IV	vancomycin 1g IV infusion (1.5g for patients more than 80kg actual body weight)

Recommended Prophylaxis

Surgery	Recommended Prophylaxis	High Risk Penicillin / Cephalosporin Allergy*
Otorhinolaryngology Procedures		
Major ear surgery Complex septorhinoplasty Revision sinus surgery	cefazolin 2 g IV PLUS metronidazole 500mg IV <u>High risk of MRSA infection:</u> ADD vancomycin 1g IV infusion (1.5g for patients more than 80kg actual body weight)	clindamycin 600mg IV
Tympanomastoid surgery Laryngectomy# (primary or salvage)	cefazolin 2 g IV PLUS metronidazole 500mg IV <u>High risk of MRSA infection:</u> ADD vancomycin 1g IV infusion (1.5g for patients more than 80kg actual body weight)	clindamycin 600mg IV PLUS gentamicin 2mg/kg IV
# Postoperative doses following laryngectomy can be considered but prophylaxis (intravenous or oral) should not continue beyond 24 hours		

Note: Procedures undertaken in the setting of recent or active infection may require continuing antibiotics guided by culture and susceptibility test results

Head and Neck Surgery

Thyroidectomy Simple lymph node excision (including submandibular lymph node excision) Parotidectomy Other clean procedures not listed below	Prophylaxis NOT recommended	
Clean-contaminated procedures Procedures involving insertion of prosthetic material	cefazolin 2 g IV <u>If incision through mucosal surfaces:</u> ADD 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)	clindamycin 600mg IV

Note: Procedures undertaken in the setting of recent or active infection may require continuing antibiotics guided by culture and susceptibility test results

Extensive neck dissection for malignancy Debulking or reconstructive surgery for malignancy	cefazolin 2g IV PLUS metronidazole 500mg IV <u>High risk of MRSA infection:</u> ADD vancomycin 1g IV infusion (1.5g for patients more than 80kg actual body weight) POST-OPERATIVE: A further 2 doses of cefazolin (8 hours apart) and 1 dose of metronidazole (12 hours apart) may be considered. Prophylaxis should not extend beyond 24 hours.	clindamycin 600mg IV PLUS gentamicin 2mg/kg IV POST-OPERATIVE: A further 2 doses of clindamycin (8 hours apart) may be considered. Prophylaxis should not extend beyond 24 hours.
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* 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.

Antibiotic prophylaxis should not routinely be given to patients with nasal packing or a tamponade device *in situ* following epistaxis.

Definitions / Acronyms

AMS	Antimicrobial Stewardship	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

References

- Antibiotic Expert Group (2019). [Therapeutic Guidelines: Antibiotic, Version 16](#). Melbourne: Therapeutic Guidelines Limited.
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