

Surgical Antimicrobial Prophylaxis Guidelines

Appendix 2: Antibiotic Prophylaxis for Prevention of Endocarditis in High Risk Patients

Preoperative Considerations

Antibiotic prophylaxis to prevent endocarditis is **ONLY** recommended for patients with cardiac conditions associated with the **HIGHEST RISK** of adverse outcomes from endocarditis (See Box 1) and only for certain procedures (See Box 2).

Box 1: Cardiac conditions for which antibiotic prophylaxis to prevent endocarditis is recommended

- > Prosthetic heart valve, including mechanic, bioprosthetic, and homograft valves (transcatheter-implanted as well as surgically implanted)
- > Prosthetic material used for cardiac valve repair (e.g. annuloplasty rings and chords)
- > Previous infective endocarditis
- > Cardiac transplantation with the subsequent development of cardiac valvulopathy (consult cardiologist)
- > Rheumatic heart disease in all populations
- > Congenital heart disease, only if it involves:
 - i) unrepaired cyanotic defects, including palliative shunts and conduits;
 - ii) repaired defects with residual defects at or adjacent to the site of a prosthetic patch or device (which inhibit endothelialisation).

Antibiotic prophylaxis for endocarditis MAY BE required.
See Box 2.

← YES

Does the patient have any of the conditions listed in box 1?

NO →

Antibiotic prophylaxis for endocarditis NOT required.

Box 2: Procedures where antibiotic prophylaxis for endocarditis may or may not be required

Endocarditis Prophylaxis ALWAYS REQUIRED	Endocarditis Prophylaxis IS NOT REQUIRED (list is not exhaustive)
<p>DENTAL PROCEDURES:</p> <ul style="list-style-type: none"> > Procedures involving manipulation of the gingival or periapical tissue or perforation of the oral mucosa (e.g. tooth extraction, matrix band placement, subgingival rubber dam and clamp, implant placement, biopsy, removal of soft tissue or bone, subgingival scaling and root planning, replanting avulsed teeth, apicectomy, six-point pocket charting in diseased tissue, root canal treatment before establishment of an apical stop) <p>RESPIRATORY TRACT OR EAR, NOSE & THROAT PROCEDURES:</p> <ul style="list-style-type: none"> > tonsillectomy/ adenoidectomy > any invasive procedure to treat an established infection (e.g. drainage of abscess) <p>GENITOURINARY AND GASTROINTESTINAL PROCEDURES:</p> <ul style="list-style-type: none"> > any genitourinary procedure in the presence of a genitourinary infection unless already treating enterococci (for elective cystoscopy or urinary tract manipulations, obtain a urine culture and treat any bacteriuria beforehand) > any gastrointestinal procedure in the presence of infection or colonisation unless already treating enterococci > sclerotherapy for oesophageal varices. <p>OTHER PROCEDURES:</p> <ul style="list-style-type: none"> > Procedures involving infected skin, skin structures or musculoskeletal tissues (e.g. incision and drainage of local abscess, epidural, lung, orbital, perirectal, pyogenic liver > Percutaneous endoscopic gastrostomy, PEJ 	<p>ALL OTHER DENTAL PROCEDURES NOT LISTED IN GREEN BOX:</p> <ul style="list-style-type: none"> > oral examination > infiltration and block local anaesthetic injection through non-infected tissue > restorative dentistry > supragingival rubber dam clamping and placement of rubber dam > intracanal endodontic procedures > removal of sutures > impressions and construction of dentures > orthodontic bracket placement and adjustment of fixed appliances > application of gels > dental radiography > supragingival plaque removal <p>RESPIRATORY TRACT OR EAR, NOSE & THROAT PROCEDURES:</p> <ul style="list-style-type: none"> > endotracheal intubation > rigid or flexible bronchoscopy with or without incision or biopsy > transoesophageal echocardiography <p>GENITOURINARY AND GASTROINTESTINAL PROCEDURES:</p> <ul style="list-style-type: none"> > urethral catheterisation > transervical procedures (e.g. uterine dilation and curettage, sterilisation procedures, insertion or removal of intrauterine device) > obstetric procedures including surgical termination of pregnancy > endoscopy (with or without gastrointestinal biopsy including colonoscopy)

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.

- > **Oral antibiotics** should be given 60 minutes (for amoxicillin, cefalexin) or 60 to 120 minutes (for clindamycin) prior to the procedure.
- > IV **amoxicillin** can be given over 3 to 4 minutes and should be commenced within 60 minutes prior to the procedure.
- > IV **cefazolin** can be given over 5 minutes and should be administered no more than 60 minutes before skin incision.
- > IV **clindamycin** infusion should be commenced within 120 minutes prior to the procedure. Administer doses of 600mg over at least 20 minutes (maximum rate is 30mg/min).
- > IV **vancomycin infusion** should be given at a rate of 1 g over at least 60 minutes and 1.5g over at least 90 minutes for adult patients. For paediatric patients, the infusion should be given over 120 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.
- > **Vancomycin**: Consider increased dose of vancomycin (1.5g) for adult patients weighing more than 80kg.

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	Penicillin / Cephalosporin Allergy
Dental procedures Tonsillectomy Adenoidectomy	amoxicillin 2g orally (child: 50mg/kg up to 2g) 60 minutes prior to procedure <u>OR if oral administration not possible:</u> amoxicillin 2g IV (child: 50mg/kg up to 2g)	^Moderate risk penicillin allergy: cefalexin 2g orally (child: 50mg/kg up to 2g) 60 minutes prior to procedure <u>OR if oral administration not possible:</u> cefazolin 2g IV (child: 30mg/kg up to 2g) *High risk penicillin/cephalosporin allergy: clindamycin 600mg orally (child: 20mg/kg up to 600mg) 60 to 120 minutes prior to procedure <u>OR if oral administration not possible:</u> clindamycin 600mg IV infusion (child: 20mg/kg up to 600mg)
All other procedures	amoxicillin 2g IV (child: 50mg/kg up to 2g)	vancomycin 1g IV infusion (1.5g for adult patients more than 80kg actual body weight) (child: 30mg/kg up to 1.5g) [#]

[^]Moderate risk penicillin allergy: History suggestive of moderate risk (e.g. delayed rash which is NOT urticarial or DRESS/SJS/TEN)

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

[#]For patients colonised or infected with vancomycin-resistant enterococci, seek advice from ID about an appropriate regimen

Definitions / Acronyms

AMS	Antimicrobial Stewardship	DRESS	Drug rash with eosinophilia and systemic symptoms
ID	Infectious Diseases	IV	Intravenous
PO	Per oral	SJS / TEN	Stevens-Johnson syndrome / Toxic epidermal necrolysis

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