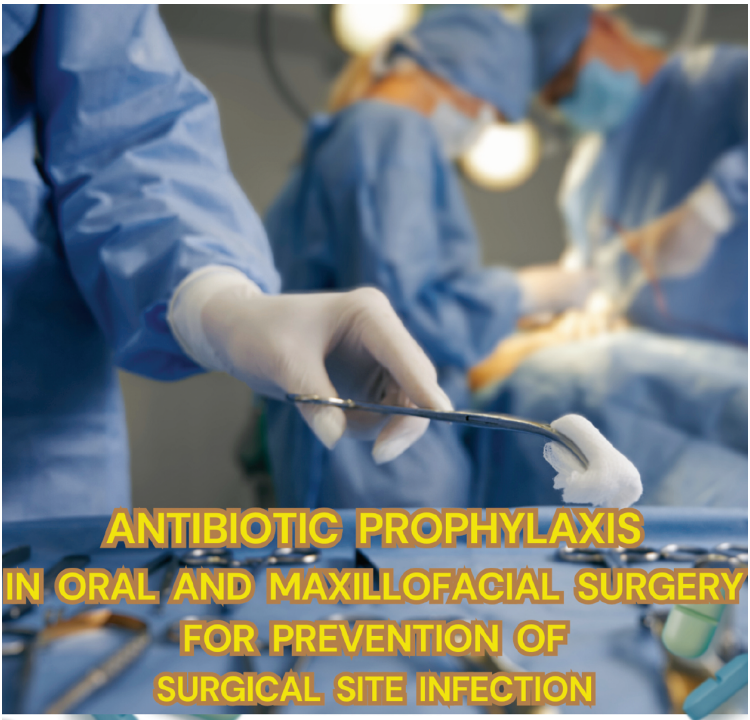
Quick Reference For Healthcare Providers

MINISTRY OF HEALTH MALAYSIA
ORAL HEALTH PROGRAMME



ANTIBIOTIC PROPHYLAXIS IN ORAL AND MAXILLOFACIAL SURGERY FOR PREVENTION OF SURGICAL SITE INFECTION

3rd EDITION

KEY MESSAGES

- Antibiotic prophylaxis (AP) helps reduce post-operative infections in oral and maxillofacial surgery and should be administered 30-60 minutes before surgical incision when necessary to prevent surgical site infections (SSIs).
- Procedures lasting more than 2-4 hours may require an additional intra-operative dose.
- The need for prophylaxis can also depend on the surgeon's skill, experience and duration of surgery.
- SSIs may present with obvious clinical signs and symptoms such as inflammation associated with pain, swelling, suppuration with or without pyrexia, integration failure of oral implants and biomaterials.
- In this CPG we have also extended SSIs to include distant site infection associated with oral and maxillofacial surgical procedures.

CHOICE OF ANTIBIOTIC PROPHYLAXIS

Based on pathogen presence, site of surgery and local resistance as summarized below;

Site of Surgery	Common Pathogen	Preferred Antibiotics
Oral	*Streptococcus* and anaerobes	Amoxicillin, Ampicillin, Benzylpenicillin
Skin	*Staphylococcus species*	Cloxacillin or Cefazolin

Broad-Spectrum AP: Amoxicillin-clavulanate and Ampicillin-sulbactam for broader coverage; use only if narrow-spectrum options are insufficient.

AP FOR PENICILLIN-ALLERGIC PATIENTS

- **Alternative Options**: Cefazolin, Azithromycin, or Doxycycline.
- **Severe Allergy Cases**: Avoid Cephalosporins if history of anaphylaxis/angioedema.
- **Clindamycin**: Higher risks of infections and adverse effects (e.g., C. difficile); caution advised.
- **European Society of Cardiology (ESC) Guidelines**: Avoid Clindamycin for dental AP; recommend Cefazolin, Azithromycin, or Doxycycline for those allergic to Penicillin.

This Quick Reference provides key messages & a summary of the main recommendations in the Clinical Practice Guidelines (CPG) Management of Antibiotic Prophylaxis in Oral and Maxillofacial Surgery For Prevention of Surgical Site Infection (Third Edition)

Details of the evidence supporting these recommendations can be found in the above CPG, available on the following websites:
Ministry of Health Malaysia: www.moh.gov.my

Oral Health Technology Section
Oral Health Programme
Ministry of Health Malaysia
Level 5, Block E10, Precinct 1
Federal Government Administrative Centre
62590 Putrajaya, Malaysia

TIMING GUIDELINES

- AP should be administered 30-60 minutes before the incision and up to 120 minutes prior for Fluoroquinolones and Vancomycin.

DOSING GUIDELINES

- **Single Dose**: Generally sufficient; limit duration to 24 hours unless specified.
- **Redosing**: Required if surgery duration exceeds antibiotic two half-lives, or if blood loss 1.5L or other factors that may shorten the half-life of the prophylactic agent (e.g extensive burns

Type of Antibiotic	Redosing Interval
Ampicillin	2 hours
Amoxicillin-clavulanate	3 hours
Ampicillin-sulbactam	2 hours
Cefazolin/Cefuroxime	4 hours
Clindamycin	6 hours

COMMONLY USED ANTIBIOTICS AND DOSAGES

Antibiotic	Dosage*		Common Side Effects	Serious Side Effects
	Adult	Paediatric		
Antibiotic	1-2g PO	50 mg/kg PO	GI discomfort	Severe hypersensitivity reactions
Amoxicillin-clavulanate	1.2g IV OR 1.25 g PO	30 mg/kg IV	GI discomfort	Severe skin reactions, convulsions
Ampicillin	2g PO	50 mg/kg IV	GI discomfort	Nephropathy, Stevens-Johnson syndrome
Ampicillin-sulbactam	3g PO	50 mg/kg IV	GI discomfort	Severe hypersensitivity reactions
Azithromycin	500mg PO	15 mg/kg PO	Nausea, dizziness	Liver failure, QT prolongation
Cefazolin	1-2g IV 3 g if body weight ≥120 kg	30 mg/kg IV	Diarrhoea, GI discomfort	Anaphylaxis, Stevens-Johnson syndrome
CLINDAMYCIN	600mg-900mg PO/IV	10 MG/KG IV	GI DISCOMFORT, HEADACHE	*C. Difficile* infections, severe skin reactions
Doxycycline	100mg PO	<45 kg, 2.2 mg/kg PO >45 kg, 100 mg PO	GI discomfort, photosensitivity	Exacerbation of SLE, severe skin reactions

*Renal Adjustment: Dosage adjustments needed in renal impairment if treatment extends beyond 24 hours.

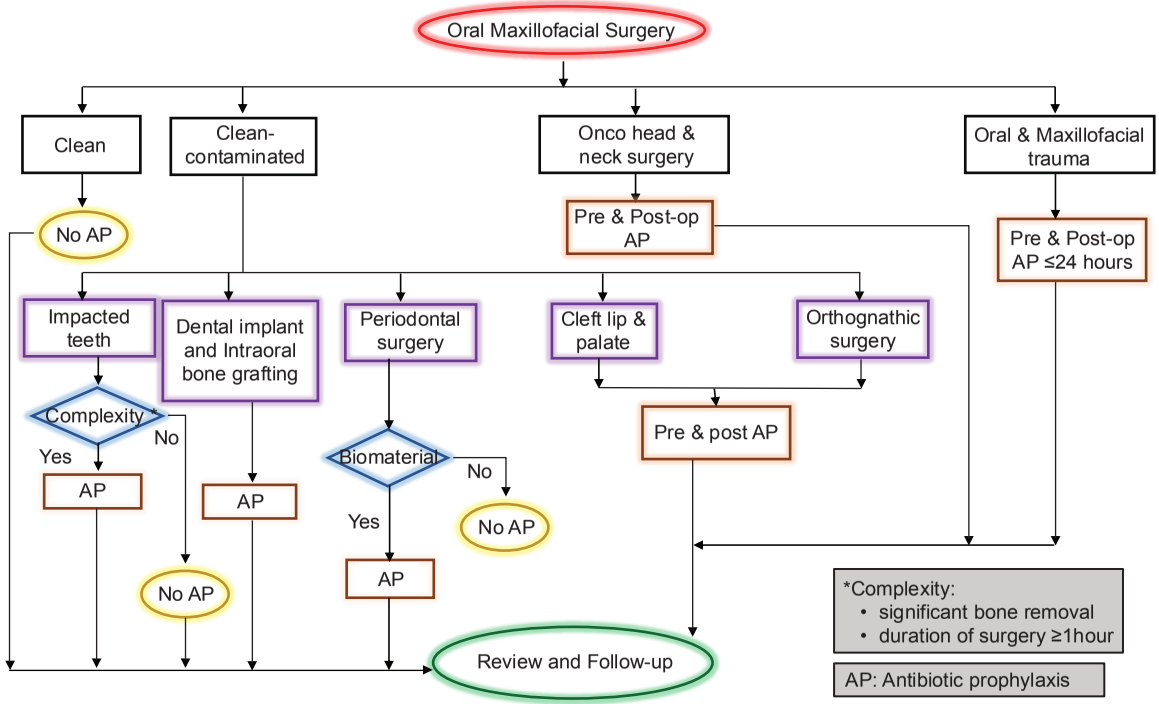
** Cephalosporin should not be used in an individual with a history of anaphylaxis, angioedema, or urticarial with Penicillin/Ampicillin

KEY RECOMMENDATIONS

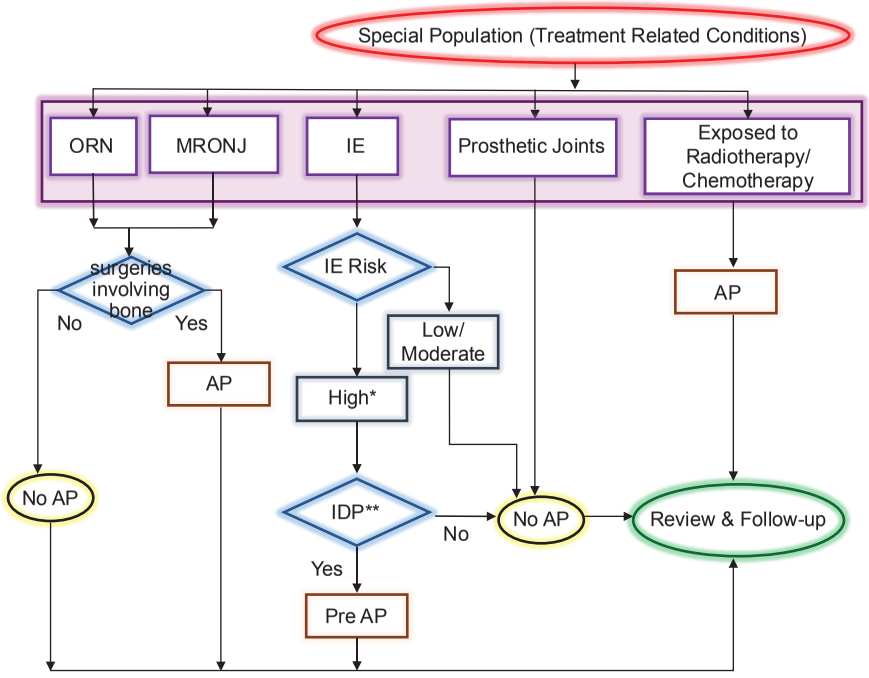
Category	Scenario	Antibiotic Prophylaxis (AP) Recommendation
Clean Surgery	Surgery that does not involve oral cavity	Not recommended
Clean-Contaminated Surgery	Impacted Tooth Surgery	May be given when indicated
	Periodontal Surgery	May be considered based on patient and procedural factors
	Dental Implant Surgery Intraoral Bone Grafting	May be given when indicated
	Cleft Lip & Palate Surgery Orthognathic Surgery	Recommended pre-operatively and may be considered post-operatively for up to 5 days
Contaminated Wounds in Oral and Maxillofacial Surgery	Contaminated or Bite Wounds	Recommended
Oral and Maxillofacial Trauma	Trauma Surgery	Peri-operative antibiotics should be given but not more than 24 hours post-operatively
Oncological Head and Neck Surgery	Cancer Surgery	Recommended
Special Population	Diabetes Mellitus	Recommended for patients with uncontrolled diabetes (BGL >10 mmol/L and HbA1c >7.5%) prior to any oral surgery
	Prosthetic Joint Replacement	Recommended for patients with high-risk factors (e.g., immunosuppression) undergoing invasive procedures
	Infective Endocarditis Risk	Recommended for high-risk patients undergoing invasive procedures
	Radiotherapy/Chemotherapy	Recommended for patients exposed to radiation or chemotherapy before oral/maxillofacial surgery
		Recommended when absolute neutrophil counts are between 1000-2000/mm^3
	Medication-Related Osteonecrosis of the Jaw (MRONJ)	Recommended for high-risk patients before invasive procedures

Indications of AP to Prevent SSIs	
1.	The CPG DG suggested that the indication for AP in all Oral and Maxillofacial Surgery are: • **Patient related factors** ○ Immunocompromised ○ Smoking status ○ Diabetes mellitus (BGL >10 mmol/L and HbA1c >7.5%) ○ Obesity • **Surgery related factors** ○ Prolonged surgical time ○ Complexity of the surgery ○ Use of implants ○ Use of bone and tissue grafts.
2.	In Oral and Maxillofacial trauma surgery, AP is only indicated up to 24 hours post ORIF. However, the AP can be prolonged up to 5 days or more to prevent SSI in the following indications: • **Patient related factors** ○ Immunocompromised ○ Smoking status ○ Polytrauma • **Surgery related factors** ○ Complex fracture and bone loss ○ Soft tissue loss at the surgical site/ insufficient soft tissue closure ○ Wound breakdown ○ Presence of contaminants. ○ Presence of foreign bodies
3.	• Antibiotic prophylaxis administration for routine dental extractions should not be prescribed for patients with well controlled diabetes mellitus. • Clinicians should consider patients' blood glucose level, Hemoglobin A1c or glycated hemoglobin (HbA1c) and extent of surgery prior to AP prescription.
4.	For immunocompromised patients who undergo surgical procedure, there are factors to consider prior to AP such as glucose level, HbA1c, neutrophils counts and CD4 level.
5.	• Most AP used in preventing MRONJ is Penicillin-based. • The duration of the AP should be given pre and post-operatively based on: ○ the medication for cancer related treatment ○ treatment for > 4 years ○ other risks factors (eg poor oral hygiene, smoking, on corticosteroids or angiogenesis inhibitors or medical comorbids such as anemia and diabetes mellitus) • Patients at risk of MRONJ should be referred to OMFS prior to any invasive dental procedures.
6.	The choice of AP for patients who are undergoing oral and maxillofacial surgical procedures will be determined by • surgical site involved/ microorganism presence • local antibiotic resistance pattern • patient's medical condition

Algorithm 1: Antibiotic Prophylaxis (AP) in Oral and Maxillofacial Surgery for Prevention of Surgical Site Infection



Algorithm 2: Antibiotic Prophylaxis in Special Population (Treatment Related Conditions) for Prevention of Surgical Site Infection in Oral and Maxillofacial Surgery

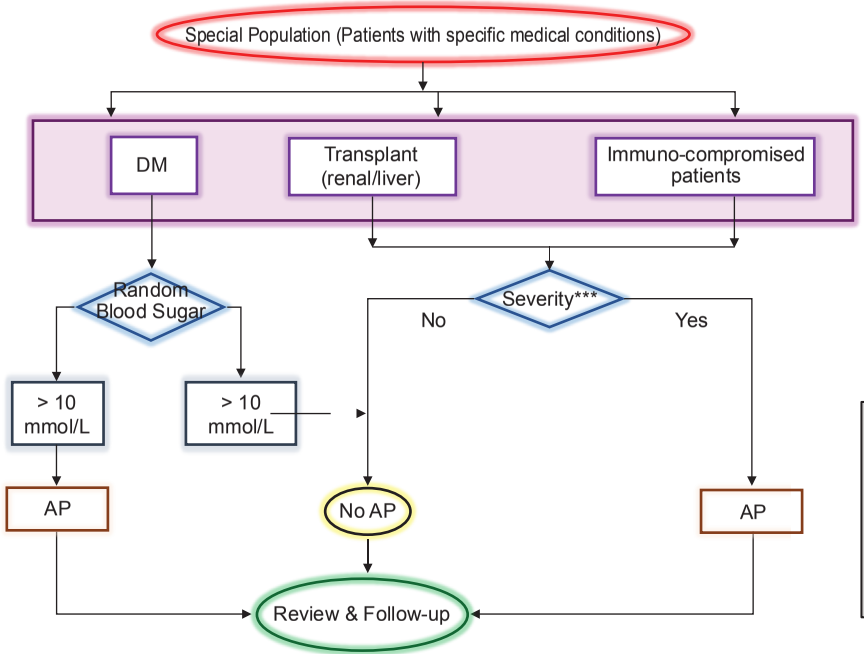


IDP: Invasive dental procedure
IE: Infective endocarditis

*High:
- Prosthetic cardiac valve or repair material
- Previous infective endocarditis (IE)
- Congenital heart disease (CHD):
- Unrepaired cyanotic CHD
- CHD repaired with prosthetic material/device (first 6 months post-procedure)
- Repaired CHD with residual defects near prosthetic patches/ devices
- Cardiac transplant recipients with valvulopathy

**IDP: such as extractions, oral surgery, scaling, and endodontic treatments.

Algorithm 3: Antibiotic Prophylaxis in Special Population (Patients with specific medical conditions) for Prevention of Surgical Site Infection in Oral and Maxillofacial Surgery



***Severity:

Discuss disease severity or immunosuppression with the physician managing comorbidities or immunosuppressive therapy (e.g., oncologist, rheumatologist).