https://hvpl.ok.ubc.ca/research/prosthetic-heart-valves/

A QUICK UPDATE ON ANTIBIOTIC PROPHYLAXIS IN DENTAL PRACTICE

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https://pocketdentistry.com/patient-examination-and-assessment/

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BACTERIAL ENDOCARDITIS

Endocarditis is an inflammation of the endocardium

- usually involves the heart valves

Bacterial Endocarditis:

- Serious and potentially life threatening bacterial infection of the lining of the heart and heart valves
  - when the endocardium becomes damaged, systemic bacteremia's can infect the heart valves or heart lining

Bacterial endocarditis is characterized by lesions, known as vegetations, which are a mass of:

- platelets
- fibrin
- microcolonies of bacteria

BACTERIAL ENDOCARDITIS PROPHYLAXIS

Endocarditis prophylaxis is the administration of antibiotics prior to bacteremia inducing procedures, for the prevention of infection in at risk patients

The American Heart Association (AHA) and American College of Cardiology (ACC) published a focused update in 2017 on the management of valvular heart disease and the prevention of subacute bacterial endocarditis

- aka - infective endocarditis
- The committee no longer recommends infective endocarditis (IE) prophylaxis based solely on an increased lifetime risk of acquisition of IE, but reserves endocarditis prophylaxis for those patients with the highest risk of adverse outcome

This is based on a review of scientific evidence, which showed that the **risk of adverse reactions to antibiotics generally outweigh the benefits of prophylaxis for many patients** who would have been considered eligible for prophylaxis in previous versions of the guidelines

- concerns over the development of drug-resistant bacteria where also a factor

INFECTIVE ENDOCARDITIS (IE) PROPHYLAXIS

1. Prosthetic cardiac valve repair, including transcatheter-implanted prostheses and allografts

2. Prosthetic material used for cardiac valve repair, such as annuloplasty rings and chords

3. History of infective endocarditis

4. Specific, serious congenital (present from birth) heart conditions, including:
   - unrepaired or incompletely repaired cyanotic congenital heart disease, including those with palliative shunts and conduits
   - a completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first six months after the procedure
   - any repaired congenital heart defect with residual defect at the site or adjacent to the site of a prosthetic patch or a prosthetic device

5. Cardiac transplant that develops a problem in a heart valve - valve regurgitation due to a structurally abnormal valve

CANADIAN DENTAL ASSOCIATION

THE 2017 ADA RECOMMENDED REGIMENS

			Regimen: Single Dose 30 to 60 minutes Before Procedure
Situation	Agent	Adults	Children
Oral	Amoxicillin	2 g	50 mg/kg
Unable to take oral medications	Ampicillin **OR** Cefazolin or Ceftriaxone	2 g IM or IV 1 g IM or IV	50 mg/kg IM or IV 50mg/kg IM or IV
Oral Allergic to Penicillin or Ampicillin	Cephalexin^* **OR** Clindamycin **OR** Azithromycin or Clarithromycin	2 g 600 mg 500 mg	50mg/kg 20 mg/kg 15 mg/kg
Unable to take oral medications **and** Allergic to Penicillin or Ampicillin	Cefazolin or Ceftriaxone^ **OR** Clindamycin	1 g IM or IV 600 mg IM or IV	50 mg/kg IM or IV 20 mg IM or IV

^ Cephalosporins should not be used in an individual with a history of anaphylaxis, angioedema, or urticaria with Penicillin or Ampicillin.

* Or other first or second-generation oral Cephalosporin in equivalent adult or pediatric dosage.

TIMING OF AB ADMINISTRATION AND SPECIAL CIRCUMSTANCES

Antibiotic prophylaxis should be administered in a single dose, 30-60 minutes before the procedure

- this time period allows for adequate blood levels of antibiotic at the time bacteremia occurs
- however, **in the event that the dosage of antibiotic is inadvertently not administered before the procedure, it may be administered up to 2 hours after the procedure**
- this protocol is reserved for emergency situations and may not be used simply for the convenience of the office or the dentist

For patients already receiving an antibiotic that is also recommended for IE prophylaxis, then a drug should be selected from a different class

- example - for a patient already taking oral penicillin for other purposes, clindamycin, azithromycin or clarithromycin would be recommended for Antibiotic prophylaxis
- alternatively if possible, dental treatment should be delayed until at least 10 days after completion of antibiotic to allow re-establishment of usual oral flora
- in situations where patients are receiving long-term parenteral antibiotic for IE, the dental treatment should be timed to occur 30 to 60 minutes after delivery of the parenteral antibiotic
- it is considered that parenteral antimicrobial therapy is administered in such high doses that the high concentration would overcome any possible low-level resistance developed among oral flora

AP AND ORTHOPEDIC IMPLANTS CDA GUIDELINES

Based on the current best available evidence, Canadian Dental Association's guidance concerning the management of dental patients with orthopedic implants is:

1. Patients should not be exposed to the adverse effects of antibiotics when there is no evidence that such prophylaxis is of any benefit

2. Routine antibiotic prophylaxis is not indicated for dental patients with total joint replacements, nor for patients with orthopedic pins, plates and screws

3. Patients should be in optimal oral health prior to having total joint replacement and should maintain good oral hygiene and oral health following surgery.

4. Orofacial infections in all patients, including those with total joint prostheses, should be treated to eliminate the source of infection and prevent its spread

AP AND ORTHOPEDIC IMPLANTS CDA GUIDELINES

The Canadian Orthopedic Association (COA), the Canadian Dental Association (CDA) and the Association of Medical Microbiology and Infectious Disease (AMMI) Canada conclude that:

- Most transient bacteremia of oral origin occurs outside of dental procedures
- The significant majority of prosthetic joint infections are not due to organisms found in the mouth
- Few prosthetic joint infections have an observable and clearly defined relationship with dental procedures
- There is no reliable evidence that antibiotic prophylaxis prior to dental procedures prevents prosthetic joint infections

AB PROPHYLAXIS EXCEPTIONS

Antibiotic prophylaxis is not required for patients with orthopedic implants prior to invasive procedures unless...
the patient has 1 or more risk factors such as:

- immunocompromised condition
- poor or unknown glycemic control
- history of prosthetic joint infection

Table 1:
Adapted from the AAOS/ADA 2016 published *Appropriate Use Criteria* (AUC) *for the Prevention of Orthopaedic Implant Infection in Patients Undergoing Dental Procedures*[12]

Clinical situations for which a client with a prosthetic joint needs to be referred to the orthopedic surgeon or primary care physician due to a high risk or immunocompromised status when planning dental procedures that involve:
manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa.[12]

Client Profile	Status	Consultation/Referral
Immunocompromised Status/Conditions:	▪ AIDS ▪ Cancer, undergoing chemotherapy ▪ Rheumatoid arthritis and taking biologic disease modifying agents (e.g., tumor necrosis factor alpha, prednisone) ▪ Solid organ transplant ▪ Inherited diseases of immunodeficiency (e.g., congenital agammaglobulinemia, congenital IgA deficiency) ▪ Bone marrow transplant	Refer to orthopedic surgeon for determination of prophylactic antibiotic coverage needs
Diabetic Glycemic Control:	▪ HbA1c ≥ 8 or (need to be within 3-6 months) ▪ Blood Glucose ≥ 11.1 mmol/L (200 mg/dl) ▪ No reading	Delay treatment until consultation with the primary care physician for an HbA1c or blood glucose test
In addition to any of the above:	▪ History of periprosthetic or deep prosthetic joint infection that required an operation	Refer to orthopedic surgeon for determination of prophylactic antibiotic coverage needs

WHAT IF…

Patients may present with a recommendation from the orthopedic surgeon or MD that is inconsistent with the CDA guidelines, possibly due to:

- a lack of familiarity with the CDA guidelines
- the patient's medical condition

In such circumstances, dentists are encouraged to discuss the current evidence with the patient and consult with the orthopedic surgeon/MD regarding the reason for the recommendation and the specific circumstances for which ab prophylaxis is suggested

- following a consultation, the dentist may decide to follow the recommendation of the orthopedic surgeon/MD or, if professional judgement dictates that ab prophylaxis is not indicated, decline to provide it

Each dentist is ultimately responsible for their own treatment decisions

If the dentist declines to provide ab prophylaxis then they may suggest that the orthopedic surgeon/MD should prescribe for the patient as he or she deems appropriate

AB PROPHYLAXIS - INDWELLING CARDIOVASCULAR LINES

- The AHA recommends that antibiotic prophylaxis for non-valvular devices, including indwelling vascular catheters (central lines - Hickman lines), is indicated only at the time of placement of these devices in order to prevent surgical site infection

- The AHA found no convincing evidence that microorganisms associated with dental procedures cause infection of non-valvular devices at any time after implantation

Hickman line

https://en.wikipedia.org/wiki/Hickman_line#:~:text=A%20Hickman%20line%20two-lumen%20catheter%20inserted%20on%20the,as%20for%20the%20withdrawal%20of%20blood%20for%20analysis.

DENTAL PROCEDURES REQUIRING ANTIBIOTIC PROPHYLAXIS

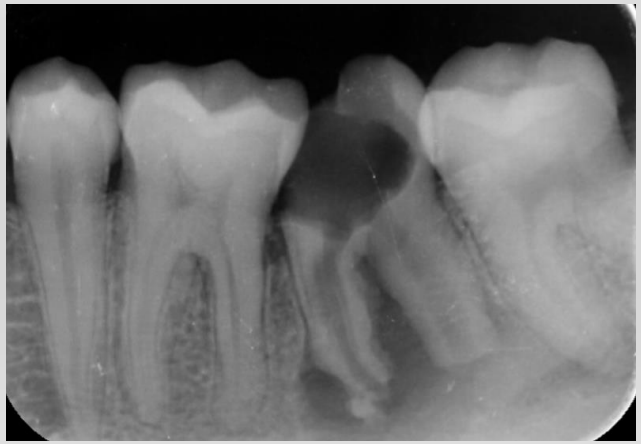
In patients where AB Prophylaxis is indicated, it is prescribed for all dental procedures that involve:

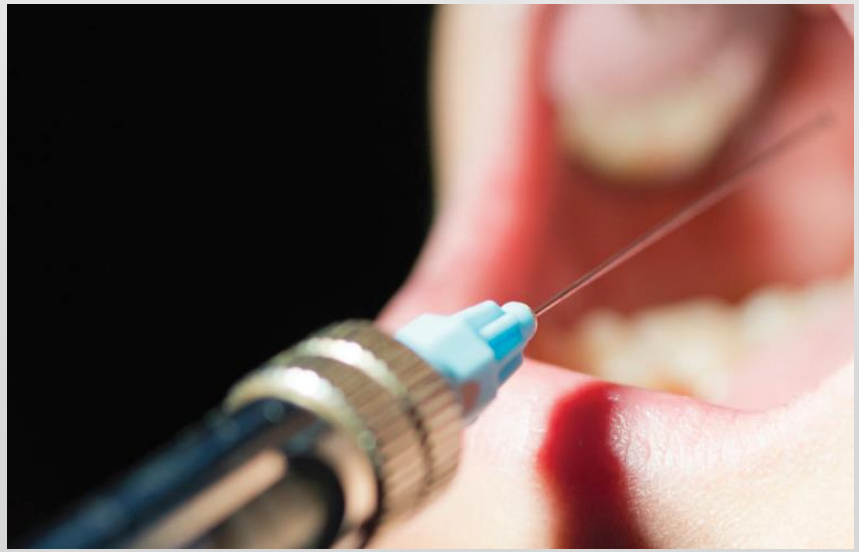
- manipulation of gingival tissue
- manipulation of the periapical region of the teeth
- perforation of the oral mucosa

https://bondistry.com/five-most-common-examples-as-to-why-teeth-are-extracted/

DENTAL PROCEDURES NOT REQUIRING ANTIBIOTIC PROPHYLAXIS

- routine local anesthetic through noninfected tissue
- dental radiographs
- placement of removable prosthodontic or orthodontic appliances
- adjustment of orthodontic appliances
- placement of orthodontic brackets
- shedding of deciduous teeth
- bleeding from trauma to the lips or mucosa





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