Update on Infective Endocarditis Prophylaxis Guideline (AHA 2007)

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In the new AHA guideline of 2007, there is a shift of emphasis towards optimal oral health rather than on antibiotics prophylaxis. Only patients with underlying cardiac conditions associated with the highest risk of adverse outcome from infective endocarditis (IE) require antibiotics prophylaxis. With this revised guideline, fewer cardiac patients need antibiotics prophylaxis.

Reasons for revision of the Infective Endocarditis (IE) Prophylaxis Guideline

- IE is much more likely to result from frequent exposure to random bacteremia associated with daily activities like tooth brushing than from bacteremia caused by a dental, gastrointestinal (GI) or genital urinary (GU) tract procedure.
- Prophylaxis may prevent an exceedingly small number of cases of IE, if any, in individuals who undergo a dental, gastrointestinal or genital urinary tract procedure.
- The risk of antibiotic-associated adverse events exceeds the benefit, if any, from prophylactic antibiotic therapy.
- Maintenance of optimal oral health and hygiene may reduce the incidence of bacteremia from daily activities and is more important than prophylactic antibiotics for a dental procedure to reduce the risk of IE.

Cardiac conditions associated with the highest risk of adverse outcome from IE for which prophylaxis with dental procedures is recommended

- Prosthetic cardiac valve or prosthetic material used for cardiac valve repair
- Previous infective endocarditis
- Unrepaired cyanotic congenital heart defect, including palliative shunts and conduits
- Completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 months after the procedure
- Repaired congenital heart lesions with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibit endothelialization)
- Cardiac transplantation recipients who develop cardiac valvulopathy.

Dental procedures for which IE prophylaxis is recommended

- All dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa

* The following procedures do not need prophylaxis: routine anesthetic injections through noninfected tissue, taking dental radiographs, placement of removable prosthodontic or orthodontic appliances, adjustment of orthodontic appliances, placement of orthodontic brackets, shedding of deciduous teeth and bleeding from trauma to the lips or oral mucosa.

Regime of antibiotics prophylaxis for dental procedure

- An antibiotic for prophylaxis should be administered in a single dose before the procedure.
- If the dosage of antibiotic is inadvertently not administered before the procedure, the dosage may be administered up to 2 hours after the procedure. However, administration of the dosage after the procedure should be considered only when the patient did not receive the pre-procedure dose.

Regimes for dental Procedure

		Regime: Single Dose 30-60 min Before Procedure	
Situation	**Agent**	**Adults**	**Children**
Oral	Amoxicillin	2 grams	50 mg/kg
Unable to take oral medications	Amipcillin **or** Ceftriaxone	2 grams IM or IV 1 gram IM or IV	50 mg/kg IM or IV 50 mg/kg IM or IV
Allergic to Penicillins or ampicillin – oral	Cephalexin **or** Clindamycin **or** Azithromycin / Clarithromycin	2 grams 600 mg 500 mg	50 mg/kg 20 mg/kg 15 mg/kg
Allergic to penicillins or ampicillin and unable to take oral medication	Ceftriaxone **or** Clindamycin	1 gram IM or IV 600 mg IM or IV	50 mg/kg IM or IV 20 mg/kg IM or IV

IM intramuscular; IV intravenous

Regimes for of antibiotics prophylaxis for other procedures

- Antibiotic prophylaxis is recommended for procedure on respiratory tract, or infected skin, skin structures, or musculoskeletal tissue*on patients with cardiac conditions associated with the highest risk of adverse outcome from IE
- Antibiotic prophylaxis solely to prevent IE is not recommended for GI and GU tract procedure#
- Antibiotic prophylaxis to prevent IE is not recommended for ear and body piercing, tattooing, vaginal delivery and hysterectomy.

*If the infection is known or suspected to be caused by Staphylococcus aureus, the regimen should contain an agent active against S aureus and β-hemolytic streptococci, such as an anti-staphylococcal penicillin or cephalosporin, or vancomycin (20 mg/kg IV) in patients unable to tolerate a β-lactam. Vancomycin should be administered if the infection is known or suspected to be caused by a methicillin-resistant strain of S aureus.

For patients with cardiac conditions associated with the highest risk of adverse outcome from IE and an established GI or GU tract infection or for those who receive antibiotic therapy to prevent wound infection or sepsis associated with a GI or GU tract procedure, it may be reasonable that the antibiotic regimen include an agent active against enterococci, such as penicillin, ampicillin, piperacillin or vancomycin.

Specific situations and circumstances

- **Patients already receiving antibiotics:** If a patient is already receiving long-term antibiotic that is also recommended for IE prophylaxis for a dental procedure, it is prudent to select an antibiotic from a different class rather than to increase the dosage of the current antibiotic.
- **Patients who receive anticoagulants:** Intramuscular injections for IE prophylaxis should be avoided in patients who are receiving anticoagulant therapy. In these circumstances, orally administered regimens should be given whenever possible. Intravenously administered antibiotics should be used for patients who are unable to tolerate or absorb oral medications.
- **Patients who undergo cardiac surgery:** A careful preoperative dental evaluation is recommended so that required dental treatment may be completed whenever possible before cardiac valve surgery or replacement or repair of CHD.

Doctors should exercise their judgement on the individual patient when apply the guideline. Antibiotics prophylaxis may be considered for high risk patients after balancing the risk and benefit.

References

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4. National Institute for Health and Clinical Excellence (NICE).Prophylaxis against infective endocarditis. 2008 (NICE clinical guideline No.64) www.nice.org.uk/CG064

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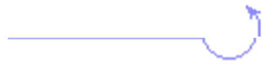

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