

ENDOCARDITIS PROPHYLAXIS

There is no published data that convincingly demonstrates that the administration of prophylactic antibiotics prevents invasive procedure-related infective endocarditis. Recently published guidelines have begun to focus on restricting prophylaxis for only those patients with the greatest risk of adverse outcome undergoing specific procedures, and limiting duration of therapy. This has helped to clear up a great deal of ambiguity regarding who needs treatment.

Patient-Specific Indications

Per the 2007 AHA guidelines, endocarditis prophylaxis prior to dental procedures is considered reasonable for the following high-risk patients:

- Patients with prosthetic heart valves or prosthetic material used for cardiac valve repair
- Patients with a history of previous infective endocarditis
- Patients who have congenital heart disease (CHD) in the following categories only:
 - Unrepaired cyanotic CHD, including palliative shunts and conduits
 - Completely repaired CHD with prosthetic material/device (surgical or catheter intervention) during first 6 months following the procedure
 - Repaired CHD with residual defects at or near the site of a prosthetic patch or device (thus preventing endothelialization)
- Recipients of cardiac transplantation with valve regurgitation due to a structural abnormality of the valve

Procedure-Specific Indications

The procedures for which endocarditis prophylaxis is considered reasonable in high risk patients (see above) are:

- *All dental procedures* involving manipulation of gingival tissue or the periapical region of the teeth, or perforation of the oral mucosa
- Respiratory tract procedures involving incision or biopsy of the respiratory mucosa
- Respiratory tract procedures to treat an established infection, e.g. abscess or empyema drainage
- Procedures involving infected skin, skin structures, or musculoskeletal tissue

Prophylaxis prior to procedures is not recommended for:

- Routine anesthetic injections through noninfected tissue
- Dental radiographs
- Placement or adjustment of removable prosthodontic or orthodontic appliances or brackets
- Shedding of deciduous teeth
- Bleeding from trauma to the lips or oral mucosal
- Bronchoscopy without mucosal incision
- GI or GU procedures

Management for High-Risk Patients

Give the following 30-60 min prior to procedure:

If able to take oral medications:

Amoxicillin 2 grams PO	PCN allergic: cephalexin 2 grams or clindamycin 600 mg or azithromycin 500 mg or clarithromycin 500 mg.* †
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If unable to take oral medications:

Ampicillin 2 grams IM/IV or cefazolin 1 gram IM/IV or ceftriaxone 1 gram IM/IV.	PCN allergic: cefazolin 1 gram IM/IV or ceftriaxone 1 gram IM/IV or clindamycin 600 mg IV. †
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*Other first- or second-generation oral cephalosporin in equivalent dose may be used alternatively.

†Cephalosporins should not be used in an individual with a history of anaphylaxis, angioedema, or urticaria with penicillins or ampicillin.

Special Management Considerations

- If the dosage of antibiotic is *inadvertently* not administered before the procedure, the dosage may be administered up to 2 hours after the procedure.
- For respiratory tract procedures involving incision or biopsy of the respiratory mucosa, antibiotic prophylaxis with the above regimens is reasonable for high-risk patients. In high-risk patients with an established respiratory infection requiring procedure, cover with antistaphylococcal therapy if suspected *Staphylococcus aureus*, in addition to viridans streptococcus coverage (use an antistaphylococcal penicillin, cephalosporin, or vancomycin).
- For procedures on high-risk patients with infected skin, skin structure or musculoskeletal tissue, it may be reasonable to treat with an agent active against staphylococci and β -hemolytic streptococci, such as an antistaphylococcal penicillin or a cephalosporin (or vancomycin or clindamycin).
- While IE prophylaxis is not recommended in general for GI/GU procedures, patients at high risk for endocarditis with ongoing infections of the GI or GU tract should be considered for antibiotics against enterococcus. Penicillin, ampicillin, piperacillin or vancomycin are reasonable choices. No published studies demonstrate that such therapy would prevent enterococcal IE, however.

References:

1. Wilson W., et al. Prevention of infective endocarditis: guidelines from the American Heart Association. *Circulation*. 2007;115:1736-1754.
2. Nishimura RA, Carabello BA, Faxon DP, et al. ACC/AHA 2008 Guideline Update on Valvular Heart Disease: Focused Update on Infective Endocarditis. *J Am Coll Cardiol*. 2008;52:676-685.