

NYPH Recommendations for Antimicrobial Use in the Prophylaxis of Infective Endocarditis

It has been a commonly held belief that antimicrobial prophylaxis before procedures that may cause transient bacteremia can prevent endocarditis in patients at increased risk for this disorder. However, the effectiveness of this common practice has never been established by controlled trials in humans. In addition, transient bacteremia is quite common in daily activities such as tooth brushing and flossing (20-68%), and even chewing food (7-51%). As such, new guidelines state that infective endocarditis (IE) is much more likely to develop secondary to transient bacteremias associated with daily activities than from bacteremia caused by a dental, gastrointestinal (GI) tract, or genitourinary (GU) tract procedure. These guidelines propose that antimicrobial prophylaxis would only prevent an exceedingly small number of cases of IE, and in the case of dental prophylaxis, greater emphasis should be placed on overall oral health and hygiene than on prophylactic antibiotics.

References:

Wilson W, Taubert KA, Gewitz M, et al. Prevention of infective endocarditis. Guidelines from the American Heart Association. A guideline from the American Heart Association Rheumatic Fever, Endocarditis, and Kawasaki Disease Committee, Council on Cardiovascular Disease in the Young, and the Council on Clinical Cardiology, Council on Cardiovascular Surgery and Anesthesia, and the Quality of Care and Outcomes Research Interdisciplinary Working Group. *Circulation* 2007;115:[Epub ahead of print].

Baddour LM, Bettmann MA, Bolger AF, et al. Nonvalvular cardiovascular device-related infections. *Circulation* 2003;108:2015-2031.

Table 1. Cardiac Conditions Requiring Prophylaxis

- Routine antibiotic prophylaxis is not recommended for all patients undergoing dental procedures.
- Only the following patients with cardiac conditions that are associated with the highest risk of adverse outcomes from endocarditis should receive prophylaxis prior to dental procedures:

Prophylaxis Recommended
<ul style="list-style-type: none"> • Prosthetic cardiac valves, including bioprosthetic and homograft valves • Previous IE • Congenital heart disease (CHD). Only the following conditions are candidates for prophylaxis: <ul style="list-style-type: none"> • Unrepaired cyanotic CHD, 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. After 6 months, prophylaxis is NOT recommended because endothelialization of prosthetic material occurs within this time • Repaired CHD 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

Table 2. Dental Procedures Requiring Prophylaxis

- Prophylaxis is recommended in the following dental procedures only for patients with cardiac conditions identified above.

Prophylaxis Recommended	Prophylaxis NOT Recommended
<ul style="list-style-type: none"> • ALL dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa 	<ul style="list-style-type: none"> • Routine anesthetic injections through noninfected tissue • Taking dental radiographs • Placement of removable prosthodontic or orthodontic appliances • Placement of orthodontic brackets • Bleeding from trauma to the lips or oral mucosa • Orthodontic appliance adjustment • Shedding of deciduous teeth

Table 3. Other Procedures Requiring Prophylaxis

- Routine antibiotic prophylaxis is **NOT** recommended for **ALL** patients undergoing respiratory, GI, and GU procedures.
- In addition, routine prophylaxis is **NOT** indicated prior to cardiac catheterization or in patients with implanted cardiac pacemakers, implanted defibrillators, and coronary stents.

Prophylaxis Recommended
<p>Respiratory Tract</p> <ul style="list-style-type: none"> • Patients with conditions listed in Table 1 who undergo an invasive procedure of the respiratory tract that involves incision or biopsy of the respiratory mucosa, such as tonsillectomy and adenoidectomy • Prophylaxis for bronchoscopy is <u>not recommended</u> unless the procedure involves incision of the respiratory tract mucosa
<p>Gastrointestinal and Genitourinary tract</p> <ul style="list-style-type: none"> • The administration of prophylactic antibiotics solely to prevent endocarditis is not recommended for patients who undergo GU or GI procedures, including diagnostic esophagogastroduodenoscopy or colonoscopy

Table 4. Prophylactic Regimens

- If the dosage is inadvertently not administered prior to the procedure, the dosage may be administered up to 2 hours post-procedure.
- The presence of fever or other signs/symptoms of systemic infection should alert the provider to the possibility of IE. In these scenarios, it is important to obtain blood cultures and other relevant tests prior to the administration of prophylactic antibiotics.
- In the case of a procedure that involves infected tissues, it may be necessary to provide additional doses of antibiotics for treatment of the established infection

Prophylactic regimens for dental, oral, respiratory tract or esophageal procedures

(*Viridans group Streptococci are the most common cause of endocarditis following these procedures)

Situation	Agent	Dosing Regimen: Single Dose 30-60 min Before Procedure	
		Adults	Children
Oral prophylaxis			
	Amoxicillin	2 grams	50 mg/kg (max 2 g)
	Clindamycin	600 mg	20 mg/kg (max 600 mg)
	OR		
Penicillin allergy	Cephalexin ¹ or cefadroxil ¹	2 grams	50 mg/kg (max 2 g)
	OR		
	Azithromycin <i>or</i> clarithromycin	500 mg	15 mg/kg (max 500 mg)
Parenteral prophylaxis			
	Ampicillin	2 grams IV or IM	50 mg/kg (max 2 g) IV/ IM
Penicillin allergy	Clindamycin	600 mg IV	20 mg/kg (max 600 mg) IV
	OR		
	Cefazolin ¹	1 gram IV or IM	25 mg/kg (max 1 g) IV/ IM

¹ Cephalosporins should not be used in individuals with immediate-type hypersensitivity reaction (urticaria, angioedema, or anaphylaxis) to penicillins