

Department for the Treatment and Study of
Abdominal Diseases and Abdominal
Transplantation.



Patient

safety

Procedures on skin and skeletal muscle tissue

Infections of the skin and skeletal muscle tissues are often polymicrobial. Only staphylococcal or beta-hemolytic streptococcal bacteremia can, in some circumstances, cause endocarditis. An antibiotic such as penicillin or cephalosporin (at the same doses used for dental procedure prophylaxis) should be used in patients undergoing procedures involving infected skin or skeletal muscle tissue. Clindamycin or vancomycin should be used if the patient cannot take these drugs or in the presence of a suspected methicillin-resistant staphylococcal infection.

Bibliography on prophylaxis of infective endocarditis:

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- Warnes CA, Williams RG, Bashore TM, et al. ACC/AHA 2008 Guidelines for the Management of Adults with Congenital Heart Disease: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (writing committee to develop guidelines on the management of adults with congenital heart disease). *Circulation* 2008; 118:e714.
- Prophylaxis against infective endocarditis. National Institute for Health and Clinical Guidance, 2008. <http://www.nice.org.uk/CG064> (Accessed on June 09, 2011).
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- Nishimura RA, Carabello BA, Faxon DP, et al. ACC/AHA 2008 guideline update on valvular heart disease: focused update on infective endocarditis: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines: endorsed by the Society of Cardiovascular Anesthesiologists, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons. *Circulation* 2008; 118:887.

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PROPHYLAXIS OF
INFECTIVE
ENDOCARDITIS
From the American Heart
Association 2007 Guidelines

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Infective endocarditis

Infective endocarditis (IE) is an infection of the lining of the cardiac cavities or valves and can be caused by bacteria, fungi or other microorganisms. The infection is more frequent in people with a heart valve disease or previous heart surgery. Less frequently, endocarditis can develop in people with a healthy heart. This disease can develop after the following sequence of events:

- Bacteria circulating in the blood adhere to the heart wall or its valves, especially when these present irregularities on their surface due to a preexisting disease or previous heart surgery.
- The bacteria multiply on the heart or valve surface forming small masses (vegetations). The valves are severely damaged by the infection with potentially serious consequences for the patient's health and life.

IE can develop in a small percentage of patients undergoing dental procedures or other invasive medical procedures that can cause a bacteremia, even transient. In the past prophylaxis was widely prescribed for any procedure, even minimally invasive, and all patients with a congenital or acquired valve disease, but often also patients with simply a heart murmur detected upon auscultation, were considered at risk.

Guidelines for antibiotic prophylaxis. In the past, the American Heart Association (AHA) that develops guidelines and recommendations for patients with heart diseases or at risk, recommended antibiotic prophylaxis for all subjects undergoing invasive procedures or with a murmur or valve disease. A review of the studies conducted between 1950 and 2006 (taking into account thousands of patients) has shown that there is no benefit in an extensive use of antibiotic prophylaxis and that this should only be used in patients classified at "high risk" (see below) and limited to some procedures on organs and systems. The guidelines in this leaflet were issued by AHA in 2007 and reflect the latest results of epidemiological reviews.

Patients requiring prophylaxis

Only those classified at "high risk", i.e. subjects presenting the following clinical conditions:

- Carriers of prosthetic cardiac valves, including bioprostheses and homograft valves.
- Patients undergoing valve (plastic) repair surgery using prosthetic materials (e.g., prosthetic cords, valve rings).
- Patients with a history of IE.
- Carriers of a congenital heart disease who have not undergone surgical repair (also those subject to palliative care with shunts or conduits).
- Patients undergoing repair of congenital heart defects using prosthetic materials or devices inserted surgically or with an interventional technique in the six months following repair (*).
- Patients with congenital heart disease undergoing surgical repair with residual defects in the same location or in a location adjacent to the device used for the repair (**).
- Valve defect in the heart graft with a documented disease of the valve leaflets.

(*) *Prophylaxis should be administered because endothelialization of the prosthetic material occurs in the six months following the procedure.*

(**) *These defects prevent the complete endothelialization of the device.*

Minor and widely diffused heart diseases, such as patent foramen ovale (PFO), interatrial and interventricular defects not repaired or repaired more than six months before, patent ductus arteriosus not repaired or repaired more than six months before, mitral valve prolapse with valve insufficiency and/or thickening of the leaflets and valve defects not repaired do not require antibiotic prophylaxis.

Guidelines should not be intended as valid therapeutic standards for all circumstances: clinicians must evaluate each case and apply them based on the circumstances and surgical environments in which the procedure will be performed.

PROCEDURES REQUIRING PROPHYLAXIS IN HIGH RISK PATIENTS

Dental, oral and upper airway procedures

Dental procedures considered most at risk are those involving the manipulation of the gingival tissue or the periapical region of teeth, or the perforation of the oral mucosa. Teeth cleaning is not included among these procedures.

Administration	Drug	Single dose 30-60 minutes before the procedure	
		Adults	Children
By mouth	Amoxicillin	2 grams	50 mg/kg
Cannot take drugs by mouth	Ampicillin or Cefazolin or Ceftriaxone	2 gr IM or IV 1 gr IM or IV	50 mg/kg IM or IV 50 mg/kg IM or IV
Allergic to penicillins or ampicillin	Cephalexin or Clindamycin or Azithromycin or Clarithromycin	2 gr 600 mg 500 mg	50 mg/kg 20 mg/kg 15 mg/kg
	Cefazolin or Ceftriaxone or Clindamycin	1 gr IM or IV 600 mg IM or IV	50 mg/kg IM or IV 20 mg/kg IM or IV

Procedures of the gastrointestinal or genitourinary tract

Antibiotic prophylaxis to prevent IE is no longer recommended for patients undergoing GI or GU tract procedures. High-risk patients undergoing GI or GU tract procedures and already with a GI or GU infection must be protected from enterococcal bacteremia with amoxicillin, ampicillin or vancomycin.