

PROFESSIONAL ADVISORY BOARD STATEMENT ON ENDOCARDITIS PROPHYLAXIS FOR PEOPLE WITH MARFAN SYNDROME

In April 2007, the American Heart Association (AHA) revised its guidelines for antibiotic treatment at the time of dental procedures and other medical situations in which there is a high likelihood of bacteria entering the bloodstream. In general, the AHA guidelines are the “gold standard” in the United States for how physicians and dentists should practice with respect to this important issue of preventing infections of heart valves (endocarditis). A major aspect of the revised guidelines is the recommendation that oral antibiotic therapy is no longer required at the time of dental work or other procedures expected to contaminate the bloodstream with bacteria for patients with mitral valve prolapse or other valve dysfunction, but is still recommended for those patients who have an artificial heart valve. The basis for this decision was not the conclusion that risk of endocarditis is not present in this population at the time of such procedures, but rather that a cumulative risk is also present in association with other routine activities of daily living, such as brushing and flossing teeth and chewing food. In fact, it is considered that the cumulative risk of endocarditis during daily life activities is higher than that associated with a specific dental or other invasive procedure (See Box 2).

The AHA continues to recommend antibiotic prophylaxis for specific sub-populations of individuals with valve dysfunction or intracardiac conduits who are deemed less capable of withstanding such infection, such as those with complex congenital heart disease, prosthetic heart valves, or previous episodes of endocarditis (See Box 3). Individuals with Marfan syndrome or other inherited connective tissue disorders are neither specifically included nor excluded from this list.

The Marfan Foundation’s Professional Advisory Board recognizes the importance of good oral health and routine dental evaluation for people with Marfan syndrome and related disorders. We continue to stress that all patients who have had a composite graft repair, placement of an artificial valve, or a history of infective endocarditis must receive antibiotics before dental work or other procedures expected to contaminate the bloodstream with bacteria. At a minimum, the AHA guidelines should be applied. In addition, the relevance of the recent modifications to Marfan patients with only mitral valve prolapse, prolapse with mitral regurgitation, or aortic regurgitation is unknown. Clearly, more studies are needed to address this important issue. In the interim, given the propensity of individuals with Marfan syndrome for multivalvular dysfunction, myxomatous valve changes, and other cardiovascular disease and/or systemic illness that can predispose to infection or hamper recovery from endocarditis, and given the low burden and risk associated with the use of antibiotics for endocarditis prophylaxis, we find a compelling argument for the continued use of antibiotics in people with Marfan syndrome and valve dysfunction that is consistent with the spirit of the recent modification of AHA guidelines. There are differences of opinion on our board as to whether or not all people with Marfan syndrome should receive subacute bacterial endocarditis (SBE) prophylaxis. Individuals with Marfan syndrome without valvular abnormality or with mild mitral valve prolapse without an obvious leak are at such low risk of endocarditis that prophylactic antibiotics are of little or no value. Each person with Marfan syndrome should consult with his or her cardiologist or cardiovascular surgeon to discuss this issue and for specific recommendations for their care with regard to whether or not antibiotic prophylaxis is appropriate for him/her.

2007 American Heart Association Guidelines Excerpts

Prophylactic Regimens for Dental, Oral, Respiratory Tract, or Esophageal Procedures. (Follow-up dose no longer recommended.) Total children's dose should not exceed adult dose.

I. Standard general prophylaxis for patients at risk:

Amoxicillin: Adults, 2.0 g (children, 50 mg/kg) given orally one hour before procedure.

II. Unable to take oral medications:

Ampicillin: Adults, 2.0 g (children, 50 mg/kg) given IM or IV within 30 minutes before procedure.

III. Amoxicillin/ampicillin/penicillin-allergic patients:

Clindamycin: Adults, 600 mg (children, 20 mg/kg) given orally one hour before procedure.

-OR-

Cephalexin* or Cefadroxil*: Adults, 2.0 g (children, 50 mg/kg) orally one hour before procedure.

-OR-

Azithromycin or Clarithromycin: Adults, 500 mg (children, 15 mg/kg) orally one hour before procedure.

IV. Amoxicillin/ampicillin/penicillin-allergic patients unable to take oral medications:

Clindamycin: Adults, 600 mg (children, 20 mg/kg) IV within 30 minutes before procedure.

-OR-

Cefazolin: Adults, 1.0 g (children, 25 mg/kg) IM or IV within 30 minutes before procedure.

*Cephalosporins should not be used in patients with immediate-type hypersensitivity reaction to penicillins.

NOTE: For patients already taking an antibiotic, or for other special situations, please refer to the full scientific statement on the prevention of bacterial endocarditis: Prevention of infective endocarditis: Guidelines from the American Heart Association on-line at <http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.106.183095v1> and <http://circ.ahajournals.org/cgi/content/full/circulationaha;116/15/e376>

BOX 2

Primary reasons for revision of the infective endocarditis prophylaxis guidelines.

- Infective endocarditis (IE) is much more likely to result from frequent exposure to random bacteremias associated with daily activities than from bacteremia caused by a dental, gastrointestinal (GI) tract or genitourinary (GU) tract procedure
- Prophylaxis may prevent an exceedingly small number of cases of IE, if any, in people who undergo a dental, GI tract or GU 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

BOX 3

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

- Prosthetic cardiac valve
- Previous infective endocarditis
- Congenital heart disease (CHD)*
 - 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 six months after the procedure†
 - 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

* Except for the conditions listed above, antibiotic prophylaxis is no longer recommended for any other form of CHD.

† Prophylaxis is recommended because endothelialization of prosthetic material occurs within six months after the procedure.

BOX 5

Summary of major changes in updated document.

- We concluded that bacteremia resulting from daily activities is much more likely to cause infective endocarditis (IE) than bacteremia associated with a dental procedure
- We concluded that only an extremely small number of cases of IE might be prevented by antibiotic prophylaxis even if prophylaxis is 100 percent effective
- Antibiotic prophylaxis is not recommended based solely on an increased lifetime risk of acquisition of IE
- Limit recommendations for IE prophylaxis only to those conditions listed in Box 3
- Antibiotic prophylaxis is no longer recommended for any other form of congenital heart disease, except for the conditions listed in Box 3
- Antibiotic prophylaxis is recommended for all dental procedures that involve manipulation of gingival tissues or periapical region of teeth or perforation of oral mucosa only for patients with underlying cardiac conditions associated with the highest risk of adverse outcome from IE (Box 3)
- Antibiotic prophylaxis is recommended for procedures on respiratory tract or infected skin, skin structures or musculoskeletal tissue only for patients with underlying cardiac conditions associated with the highest risk of adverse outcome from IE (Box 3)
- Antibiotic prophylaxis solely to prevent IE is not recommended for gastrointestinal or genitourinary tract procedures
- Endocarditis prophylaxis is not recommended for other common procedures including ear piercing and body piercing, tattooing, and vaginal delivery and hysterectomy