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# American Heart Association Updates Infective Endocarditis Guidelines

The American Heart Association (AHA) published new guidelines for the prevention of infective endocarditis (IE) in the April 2007 issue of its scientific journal, *Circulation*. The updated guidelines represent a significant change for many dental patients who have taken prophylactic antibiotics in the past.

The AHA cited a number of reasons for undertaking a review of the IE prophylaxis guidelines issued ten years ago. Many publications had questioned the appropriateness, efficacy, and safety of the previous recommendations. Moreover, the complexity of the 1997 guidelines, both for patients and health care providers, demanded a more recent review.

The AHA Committee on Rheumatic Fever, Endocarditis and Kawasaki Disease analyzed both current and past scientific literature and also solicited input from "national and international experts on infective endocarditis." The American Dental Association (ADA), on its website www.ada.org, notes that the "ADA participated in the development of the new guidelines and has approved those portions relevant to dentistry." The AHA further indicates the updated guidelines "have also been endorsed by the Infectious Diseases Society of America and by the Pediatric Infectious Diseases Society."

Based on the scientific evidence reviewed, the AHA now concluded the following, presented in the guidelines as "Table 2: Primary Reasons for Revision of the IE Prophylaxis Guidelines"

- "IE is much more likely to result from frequent exposure to random bacteremias associated with daily activities than from bacteremia caused by a dental, GI tract or GU tract procedure." The term "daily activities" as used in the guidelines includes tooth brushing, flossing, use of toothpicks, use of irrigation devices, and chewing food.

- "Prophylaxis may prevent an exceedingly small number of cases of IE, if any, in individuals 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."

**Patients at risk for IE**

Based on these conclusions, the AHA now recommends that only those patients with the highest risk of an adverse outcome from endocarditis receive antibiotic prophylaxis. Table 3 of the guidelines lists the affected patient groups. Premedication is recommended for patients who have:

- "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)

    * 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 6 months after the procedure
- Cardiac transplantation recipients who develop cardiac valvulopathy"

The AHA recommendations also include an indication of the dental procedures that would require prophylaxis for those who meet the aforementioned cardiac criteria. However, the recommendation defers largely to the judgment of the clinician. Prophylaxis is indicated, as follows for:

> "All dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa. The following procedures and events 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."

**Prophylaxis regimens**

The suggested antibiotic prophylaxis regimen for adult patients warranting IE prophylaxis who *are not* allergic to penicillin remains 2.0 grams of amoxicillin orally. The timing of the dosage has been modified slightly, allowing it to be taken 30-60 minutes prior to the dental procedure. Recommended alternate regimens for adult patients allergic to penicillin, also to be taken orally 30-60 minutes prior to the dental procedure, include:

- cephalexin (2.0 grams), or
- clindamycin (600 mg), or
- azithromycin or clarithromycin (500 mg).

The reduction by half in the recommended waiting time from ingestion of the antibiotic to procedure start also will be helpful, especially to patients who did not remember to premedicate as directed.

**Risk management implications**

What does this mean for dentists and their patients? Based on this recommendation, numerous patients who have been taking prophylactic antibiotic regimens for many years no longer require prophylaxis. Some patients will be relieved to no longer be included in the protocol. For others who may be reluctant to discontinue their premedication regimen, it will be a source of confusion and concern.

For dentists, we are hopeful that the limited indications for prophylaxis will make the medical history intake and review, and its associated decision making with respect to prophylaxis, much clearer. The most troublesome medical history, that of a patient who reports a history of mitral valve prolapse but does not know whether he or she has associated valvar regurgitation and/or thickened leaflets, no longer requires a lengthy discussion and education about the necessity and merits of an echocardiogram. All dental personnel should be aware that mitral valve prolapse is no longer a clinical indication for prophylaxis. Similarly, rheumatic heart disease, bicuspid valve disease, calcified aortic stenosis, or congenital heart conditions such as ventricular septal defect, atrial septal defect and hypertrophic cardiomyopathy also do not serve as a clinical indication for prophylaxis.

The AHA recommendations for the prevention of infective endocarditis have been in existence in various forms for over fifty years. Keep in mind they are guidelines, not hard-and-fast rules. Both the AHA and ADA recommend that the dentist exercise his or her own judgment in assessing the application of the guidelines to each patient. However, the broad, long-term acceptance and use of AHA guidelines by both the dental and medical communities has led to their frequent citation as the standard of care in dental professional liability litigation. Historically, a plaintiff's attorney may have asserted that a dentist who failed to follow the AHA guidelines was negligent. We anticipate this argument may continue to be asserted in dental professional liability litigation.

However, it is now possible that a patient for whom antibiotic prophylaxis is no longer recommended under the new guidelines may, in fact, develop IE subsequent to dental care. Many dentists may wonder whether such a patient's treating dentist – who followed the new guidelines and did not premedicate – would have a reasonably defensible position. We believe the answer would be yes, since adherence to the current guidelines is recommended by the AHA, ADA, and other health care organizations.

Some dentists may believe they are "damned if they do, damned if they don't" when it comes to prescribing prophylactic antibiotics. Fortunately, the incidence of claims arising from either the act or omission of prescribing a prophylactic antibiotic regimen is low.

**Other concerns**

Patients for whom antibiotic prophylaxis is no longer recommended under the new guidelines may balk at the suggestion that they no longer premedicate. Dentists, as well as staff members who assist in patient education, should endeavor to explain the AHA rationale for the new parameters and the need to update health care information and protocols. Over the years, dentists have explained to patients many new clinical procedures and techniques as dental treatment adapted to new scientific information. The changes suggested by the AHA are no different in that regard. Explain to your patients the new guidelines are based on the most current scientific information and are intended to provide the best care with the least risk.

The guideline change also presents a concern with respect to physician recommendations. In some cases, physicians will choose to set aside the updated guidelines and recommend continued prophylaxis. Such a decision may be reasonable, based on additional medical information with which the dentist may not be conversant. Good communication between health care professionals is essential in these cases.

However, dentists also may encounter physicians who recommend continued premedication based on reasons not related to additional medical history information or scientific information. Again, communication will be critical to your attempts to reach a consensus with the physician. In some cases, an impasse will occur, resulting in continued disagreement regarding the proper course of action for the patient. In such cases, a dentist may suggest to the patient and/or physician that the physician write the antibiotic prescription. This approach will distance the dentist from the risk of allergic reaction to an apparently unnecessary antibiotic. Other options include a recommendation that the patient receive a second physician opinion, or to withdraw from the dentist-patient relationship.

If a dentist is uncertain about the applicability of the guidelines to a patient's specific cardiac condition, consult the patient's treating physician and request a written consultation report. Within that process, do your best to educate the physician about the updated recommendations and the science behind them.

The new AHA guidelines for the prevention of IE do not change the previously published ADA/AAOS advisory statement for patients with prosthetic joints.

To best protect your patients from potential injury, be knowledgeable about the updated recommendations and follow them accordingly. To ensure that you are using the most recent AHA and ADA guidelines, check the ADA web site at *www.ada.org* in the section titled Dental Topics: Antibiotic Prophylaxis. The AHA internet address is *www.americanheart.org*.

Compliance with these guidelines does not ensure that an adverse patient incident will never occur. However, it reduces the likelihood of such an event and may provide you with a strong defense should a related malpractice allegation arise.