

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

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The Council on Scientific Affairs of the American Dental Association has approved these guidelines as they relate to dentistry.

ABSTRACT

Background. The purpose of this statement is to update the recommendations by the American Heart Association (AHA) for the prevention of infective endocarditis, which were last published in 1997.

Methods and Results. A writing group appointed by the AHA for their expertise in prevention and treatment of infective endocarditis (IE) with liaison members representing the American Dental Association, the Infectious Diseases Society of America and the American Academy of Pediatrics. The writing group reviewed input from national and international

experts on IE. The recommendations in this document reflect analyses of relevant literature regarding procedure-related bacteremia and IE; in vitro susceptibility data of the most common microorganisms, which cause IE; results of prophylactic studies in animal models of experimental endocarditis; and retrospective and prospective studies of prevention of IE. MEDLINE database searches from 1950 through 2006 were done for English language articles using the following search terms: endocarditis, infective endocarditis, prophylaxis, pre-



vention, antibiotic, antimicrobial, pathogens, organisms, dental, gastrointestinal, genitourinary, streptococcus, enterococcus, staphylococcus, respiratory, dental surgery, pathogenesis, vaccine, immunization and bacteremia. The reference lists of the identified articles were also searched. The writing group also searched the AHA online library. The American College of Cardiology/AHA classification of recommendations and levels of evidence for practice guidelines were used. The article subsequently was reviewed by outside experts not affiliated with the writing group and by the AHA Science Advisory and Coordinating Committee.

Conclusions. The major changes in the updated recommendations include the following. (1) The committee concluded that only an extremely small number of cases of IE might be prevented by antibiotic prophylaxis for dental procedures even if such prophylactic therapy were 100 percent effective. (2) IE prophylaxis for dental procedures should be recommended only for patients

with underlying cardiac conditions associated with the highest risk of adverse outcome from IE. (3) For patients with these underlying cardiac conditions, prophylaxis is recommended for all dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa. (4) Prophylaxis is not recommended based solely on an increased lifetime risk of acquisition of IE. (5) Administration of antibiotics solely to prevent endocarditis is not recommended for patients who undergo a genitourinary or gastrointestinal tract procedure. These changes are intended to define more clearly when IE prophylaxis is or is not recommended and to provide more uniform and consistent global recommendations.

Key Words. AHA Scientific Statements; cardiovascular disease; endocarditis; prevention; antibiotic prophylaxis.

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Editor's note: Of the complete text of *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, the following text represents the portions that are pertinent to dentistry. The American Dental Association Council on Scientific Affairs has approved these guidelines as they relate to dentistry. These guidelines have been endorsed by the Infectious Diseases Society of America and by the Pediatric Infectious Diseases Society.*

Throughout this article, readers will see references to gastrointestinal, genitourinary and respiratory tract procedures; surgical procedures that involve infected skin, skin structures or musculoskeletal tissue; and some types of cardiac surgery. Reference to these conditions has been retained in this version of the American Heart Association (AHA) antibiotic prophylaxis recommendations directed toward dentistry because of the historical context of their inclusion by the AHA. However, the sections of the original AHA Prevention of Infective Endocarditis Guidelines that go into detail on these conditions have been removed from this article. Interested readers should consult the complete AHA Guidelines available at "<http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.106.183095>".

Finally, readers should note that *For the Dental Patient* (page 920) is a patient-directed summary of the

new guidelines that may be helpful in educating patients about the changes.

Infective endocarditis (IE) is an uncommon but life-threatening infection. Despite advances in diagnosis, antimicrobial therapy, surgical techniques and management of complications, patients with IE still have substantial morbidity and mortality related to this condition. Since the last American Heart Association (AHA) publication on prevention of IE in 1997,¹ many authorities, societies and the conclusions of published studies have questioned the efficacy of antimicrobial prophylaxis to prevent IE in patients who undergo a dental, gastrointestinal (GI) or genitourinary (GU) tract procedure and have suggested that the AHA guidelines should be revised.²⁻⁵ Members of the Rheumatic Fever, Endocarditis, and Kawasaki Disease Committee of the AHA

ABBREVIATION KEY. ACC: American College of Cardiology. ADA: American Dental Association. AHA: American Heart Association. CHD: Congenital heart disease. FimA: Fimbrial adhesion protein. GI: Gastrointestinal. GU: Genitourinary. IE: Infective endocarditis. LOE: Level of evidence. MVP: Mitral valve prolapse. NBTE: Nonbacterial thrombotic endocarditis. PVE: Prosthetic valve endocarditis. RHD: Rheumatic heart disease.

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