

Position statement of the American Academy of Oral and Maxillofacial Radiology on selection criteria for the use of radiology in dental implantology with emphasis on cone beam computed tomography

Donald A. Tyndall, DDS, MSPH, PhD,^a Jeffery B. Price, DDS, MS,^b Sotirios Tetradis, DDS, PhD,^c Scott D. Ganz, DMD,^d Charles Hildebolt, DDS, PhD,^e and William C. Scarfe, BDS, MS^f

A Position Paper Subcommittee of the American Academy of Oral and Maxillofacial Radiology (AAOMR) reviewed the literature since the original position statement on selection criteria for radiology in dental implantology, published in 2000. All current planar modalities, including intraoral, panoramic, and cephalometric, as well as cone beam computed tomography (CBCT) are discussed, along with radiation dosimetry and anatomy considerations. We provide research-based, consensus-derived clinical guidance for practitioners on the appropriate use of specific imaging modalities in dental implant treatment planning. Specifically, the AAOMR recommends that cross-sectional imaging be used for the assessment of all dental implant sites and that CBCT is the imaging method of choice for gaining this information. This document will be periodically revised to reflect new evidence. (Oral Surg Oral Med Oral Pathol Oral Radiol 2012;113:817-826)

In 2000, the American Academy of Oral and Maxillofacial Radiology (AAOMR) published a position paper on the role of imaging in dental-implant treatment planning.¹ They state, "After reviewing the current literature, the AAOMR recommends that some form of cross-sectional imaging be used for implant cases and that conventional cross-sectional tomography be the method of choice for gaining this information for most patients receiving implants." Since then, the introduction and increased use of maxillofacial cone beam computed tomography (CBCT) has had an impact on the availability of digital, cross-sectional imaging and expanded imaging clinical applications for dental-implant imaging.²⁻¹⁸

In 2008, the Executive Council (EC) of the AAOMR published an executive opinion statement on the performance and interpretation of CBCT in dentistry.¹⁹ The EC proposed guidelines and principles for CBCT

use in contemporary dental practice; these included practitioner responsibilities, the requirement for documentation, and the need for radiation-dose and quality-assurance optimization. If CBCT is used (as with any radiographic imaging technology), the benefits to the patient must outweigh the risks associated with exposure to ionizing radiation.

The purpose of developing imaging selection criteria for implant therapy is to identify the most appropriate imaging technology for each stage of patient care.¹ The development of selection criteria is based on review of treatment-decision and outcome-assessment studies. Although more than 10 years have passed since publication of the AAOMR position paper on dental implants,¹ studies of the clinical efficacy of cross-sectional imaging for implant planning decisions have been equivocal.²⁰⁻²⁵

The purpose of this document is to summarize current knowledge about maxillofacial imaging (with emphasis on CBCT) for dental, endosseous-implant therapy and to provide up-to-date radiographic selection criteria for dental implantology. The recommendations presented are not prescriptive but rather advisory and are intended to provide the dental profession with current considered opinions on the appropriate imaging for implant dentistry. The underlining goal is to maximize diagnostic efficiency while minimizing patient radiation risk.

CLINICAL CONSIDERATIONS IN SELECTION CRITERIA FOR DENTAL IMPLANTOLOGY

The diagnostic phase of dental-implant therapy and, in particular, the appropriate choice of radiographic ex-

^aDiplomate, American Board of Oral and Maxillofacial Radiology, University of North Carolina at Chapel Hill School of Dentistry, Chapel Hill, NC.

^bDiplomate, American Board of Oral and Maxillofacial Radiology, Meharry Medical College School of Dentistry, Nashville, TN.

^cDiplomate, American Board of Oral and Maxillofacial Radiology, University of California in Los Angeles School of Dentistry, Los Angeles, CA.

^dPrivate practice limited to Prosthodontics, Maxillofacial Prosthetics, and Implant Dentistry, Fort Lee, NJ.

^eMallinckrodt Institute of Radiology, Washington University in St. Louis School of Medicine, St Louis, MO.

^fDiplomate, American Board of Oral and Maxillofacial Radiology, University of Louisville School of Dentistry, Louisville, KY.

© 2012 Elsevier Inc. All rights reserved.

2212-4403/\$ - see front matter

<http://dx.doi.org/10.1016/j.oooo.2012.03.005>