

Trends in oral and maxillofacial imaging: Education is the key

Imaging of the maxillofacial region has seen tremendous changes in the past decade. The change is not only in the need for the three-dimensional volumes, but also in the way we capture them. The explosion of knowledge and procedures related to implant dentistry, endodontics, and other specialties led to innovations in cone beam computed tomography (CBCT). CBCT provides relatively high isotropic spatial resolution of osseous structures with a reduced radiation dose compared with conventional CT scans. Although the technology was first adapted for potential clinical use in 1982 at the Mayo Clinic Biodynamics Research Laboratory,¹ the first CBCT system² did not become commercially available in the United States for dentomaxillofacial imaging until 2001 (NewTom QR DVT 9000, Quantitative Radiology). What makes CBCT machines even more popular is their comparatively low radiation dosages. The effective doses are in the broad range of 13 to 498 μSv , with most scan doses within the range of 30 to 80 μSv depending on exposure parameters and selected field of view (FOV) size.³ In comparison, standard panoramic radiography delivers around 13.3 μSv ; a multidetector CT with a similar FOV delivers around 860 μSv .³ Dental practitioners have begun using the office-based CBCT scanners for preoperative imaging in implant procedures. CBCT has also been used with increasing frequency as the need for low-dose 3D imaging has increased in the evaluation of orofacial pain and dentofacial trauma as well as in the fields of periodontics, endodontics, prosthodontics, and orthodontics. CBCT is also used in otorhinolaryngology for imaging sinuses, frontal recesses, temporal bones, and lateral skull bases.³ At the same time, this explosion has resulted in the use of CBCT as an office-based procedure by nonradiologists with limited training in volume interpretation.

With the advent and adaptation of CBCT technology, there is a tremendous need to educate the general dentist in normal CBCT anatomy and demonstrate the efficacy of such imaging in the practice of dentistry, regardless of the specialty. There are occasions in which this technology should be combined with other modalities such as multidetector CT (MDCT), ultrasound (US), magnetic resonance imaging (MRI), and even positron emission tomography combined with CT (PET/CT) when indications arise. This



important mission of adaptation of advanced imaging modalities by the general dentist is accomplished via education and training. *Quintessence International*, a leader in the promotion of technologically innovative education to the general dentist since its inception, will take this role a step further with the addition of a special section dedicated to all modes of advanced imaging. Although this section will explore, acquaint, and educate the general dentist in many of the aspects of CT and MRI, it will be primarily dedicated to the advancement of knowledge in the field of CBCT. The concept of continuing education is not new to dentistry, and this would be another milestone in the advancement of science via a dedicated dental scientific publication that has a global presence. We would like to invite submissions that deal with advanced imaging technology and modes of use, as well as interpretative, pathology-related, and treatment-oriented manuscripts with the goal of enhancing the knowledge of the general dentist.

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