



Dose reduction and cone beam CT: Perception is reality



This editorial will probably sound like preaching to the choir, especially to dentists who are on track toward responsible use of ionizing radiation. But for the majority of users out there, please let it serve as a reminder of how dental professionals should maintain vigilance in an era that has seen the introduction and generally unrestricted growth of cone beam computed tomography (CBCT). The overuse of CBCT scanners recently came under fierce criticism in the press¹ as its usage has defied the normal logic and, perhaps, betrayed the public trust in our profession.

In most US states, primary care dentists can easily purchase and install a CBCT scanner. In contrast, primary care physicians cannot do the same unless they are trained medical radiologists. There are good reasons how and why CBCT scanners have become part of the dental diagnostic arsenal. Primarily, there is great benefit to those planning and placing implants and performing other treatments that demand a three-dimensional view of the hard tissue structures and makes CBCT such an ideal fit. The technologic advances that made this possible include the significant reduction in the radiation doses as well as user-friendly hardware and software when compared to medical CT.

Dentists should take the opportunity and responsibility provided by this new modality seriously and make justifiable use of the technology. Consideration of selection criteria guidelines, limitations in interpretive skills, and the time involved in reporting significant findings is mandatory. The common goals for all these recommendations and initiatives are the overall reduction in unnecessary radiation doses to the patient population as well as maximum diagnostic yield from any imaging done.

Dentists should realize that while they can often read limited volume data for common den-

toalveolar disease, large sets of data as well as unexpected findings should be sent to an oral and maxillofacial radiologist for interpretation.

The unspoken assumption in some blogs and manufacturer-sponsored lectures is that clinicians should consider CBCT scanners merely as investments. This mindset is iniquitous and negates the ethics of our profession. Even specialists such as orthodontists have come under criticism for routinely imaging young patients, as the negative implications of radiation are generally greater for children than adults.

While CBCT doses are comparatively low on a per-scan basis, they can be lowered even further by selecting volumes limited to the region of interest. There are obviously good indications for CBCT imaging in dentistry. By eliminating unnecessary scans, the radiation dose from CBCT can be eliminated completely. More than regulations, a change in our approach toward diagnostic imaging would bring about the needed transformation in both radiation doses and our patients' perceptions of our management of our newest tool.

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REFERENCE

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