EDITORIAL

The success of cone beam CT

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Today, 16 years after its introduction in *Dentomaxillofacial Radiology* (*DMFR*), cone beam CT (CBCT) clearly dominates the scientific literature on dentomaxillofacial (DMF) imaging. For some journals, a reader could get the idea that no other option for radiographic imaging exists. Although we aim to balance the publications in *DMFR*, almost 50% of the articles published in 2013 were explicitly dealing with CBCT. Almost 5000 entries are returned by PubMed when searching for “Cone Beam Computed Tomography”. Apart from a general curiosity for novel techniques, clearly, this boom to a considerable extent is driven by the fascination for images that look so beautiful and “real”. For a clinical user, a surface rendered visualization (what is often technically incorrectly termed “3D visualization”) often seems to display the skull (or parts thereof) looking as if it has been photographed. Of course, this is also the intention of the computer scientists in using well-established image processing and visualization methods to produce realistic appearances. But, is it only this human preference for visual information that makes CBCT so successful? Although it may account for a great deal of the fascination, there is certainly more behind CBCT imaging. Offering three-dimensional views of three-dimensional objects obviously is a sort of “natural” way to provide imaging data. Clearly, the main advantage of CBCT over two-dimensional radiography is adding the third dimension. Why have we then, for more than 100 years before the introduction of CBCT, done quite well with two-dimensional radiographs? And is there a patient benefit from replacing more and more two-dimensional

radiographs with CBCT images? Well, these questions have yet to be answered. Although we know a lot about the technical issues, dose implications and limitations of CBCT, we still have extremely scarce information on patient outcome. As a leading international journal in DMF imaging, the *DMFR* certainly has the obligation to provide thorough and novel information on this booming technology. This explains why we, as editors, aim to carefully select manuscripts that are dealing with CBCT imaging in order to publish those that really advance knowledge on the technique. Thorough CBCT studies describing patient outcomes are of particular interest to the readers of *DMFR*; those lacking novel imaging aspects and focussing wholly on anatomical detail/variation assessed in CBCT generate less interest within the community. Research considered for publication in *DMFR* should build on existing scientific knowledge and aim to investigate open questions using a thorough scientific approach. In January 2015, we intend to publish a special issue on CBCT for which many experts from all around the world have been invited to submit review articles on pre-selected topics. The intention is that this special issue can provide state-of-the art knowledge on CBCT from an imaging perspective. I hope that it also helps to define those questions that are yet to be answered.

Sincerely

Ralf Schulze
Editor