

ENRICH, ADVANCE AND ENHANCE WITH 3D IMAGING

A look at Vatech's advancements in CBCT technology, and Dr Winifred Van Rensburg describes the varied roles played by the PaX-i3D Smart imaging system at her Essex-based practice

Imaging technology is evolving at an astounding pace and the latest innovations offer high standards of diagnosis and treatment, which is enabling dental practitioners to reach advanced levels of clinical excellence. The industry is seeing some truly remarkable systems with advanced radiography to successfully assess and evaluate the oral cavity, aid diagnosis, plan treatment and ensure that patients receive the most effective but least intrusive treatments.

In recent years, Cone Beam Computed Tomography (CBCT) has shown a significant jump in many areas of dentistry and as one would expect, its application dramatically enhances areas where intraoral radiography and clinical examination alone is not able to offer sufficient information. The consensus of opinion is that by delivering highly accurate 3D images of the patient's anatomy from one, low radiation scan, CBCT technology delivers a comprehensive understanding of the patient's jaw and the anatomical structures necessary to properly provide treatment.¹

CBCT technology enables practitioners to decrease potential risk and enhance the predictability of their results considerably, with thorough, accurate analysis and planning. As a small example of the literature reviews and research papers that are available, it has been noted that: for the treatment of complex endodontic cases such as root resorption, missed extra canal, fusion, oblique root fracture, non-diagnosed periapical pathology and horizontal root fracture, CBCT aided



The Vatech PaX-i3D Smart imaging system

diagnosis has been shown to be particularly important.²

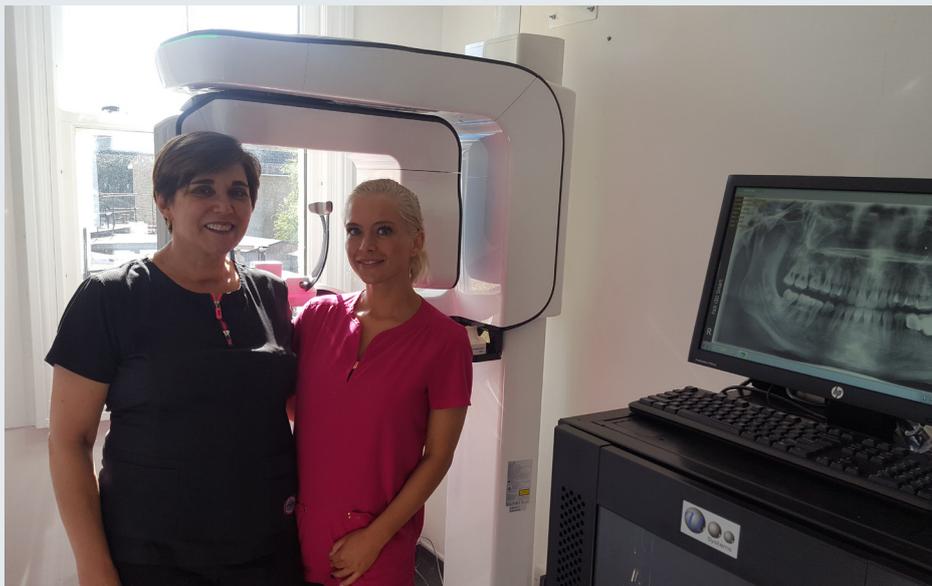
Additionally, this technology is able to detect subtle variations in bone density, which can help determine the predictability of surgical procedures and the longevity of restorative treatment. As the International Congress of Oral Implantologists Consensus Report states, 'The literature supports the use of CBCT in dental implant treatment planning particularly in regards to linear measurements, three-dimensional evaluation of alveolar ridge topography, proximity to vital anatomical structures and the fabrication of surgical guides.'³ Furthermore, the use of 3D technology for orthodontics and orofacial surgical has

been described as 'precious' as it provides clinicians with the ability to replicate or describe the anatomic and physiological facts exactly and precisely. One study states, 'Although the pathologies created by ectopic teeth and surrounding structures can be identified with conventional radiograph, the studies being conducted with CBCT scans give more accurate data regarding the actual relationships between impacted teeth and adjacent teeth, and possible root resorptions.'⁴

As these demonstrate just a fraction of the literature and studies that describe the numerous advantages of 3D technology, it is little wonder that a clinician and new user of the Vatech PaX-i3D Smart CBCT machine said that without her 3D scanning equipment, she would feel as if she was working blind. Although she uses 2D imaging for diagnosing

decay, CBCT scanning equipment allows her to reveal pathology that would not be visible on a normal X-ray and consequently makes it easier for her to visualise her cases with increased clarity.

The Vatech PaX-i3D Smart epitomises the very latest developments in the 3D imaging arena. With compressed sensing technology, this equipment offers smart innovation and everything dental practitioners need to reach clear and accurate diagnoses. It is an extremely versatile, easy to use instrument with excellent isolation and angulation capabilities. The Vatech PaX-i3D Smart provides two superior images: a CT image and an Auto Pano image from just a single low-exposure scan, which safeguards



the patient's well being. The two images are displayed simultaneously within the One Viewer feature, which enables clinicians to see the images together in one software programme. The PaX-i3D Smart also has a unique FOV feature that provides an arch-shaped volume to show a wider view of the dentition and eliminate the possibility of missing any vital anatomical information.

As well as providing precise, consistent advanced images to complement the skills and expertise of the clinician, CBCT technology enriches patient care. It helps clinicians to explain problems when treatment is needed and with clearly laid out images; patients are able to gain greater understanding of their clinical situation or diagnosis, which can help to increase compliance. A highly innovative instrument such as the Vatech PaX-i3D Smart also creates a progressive, professional look to the treatment room, which adds value to the practice and the patient experience.

Advanced radiographic imaging technology sets out new possibilities for dental practitioners and their patients with solutions to enhance dentistry for many years to come. To see the full range of 3D imaging technology available from Vatech give the team a call today.

Written by DR WINIFRED VAN RENSBURG

'I qualified in 1985 from the University of Pretoria in South Africa. I went into private practice immediately and had my own practice in Pretoria until 2003 when I moved to the UK. Here I gained a Diploma in Sedation and Pain Management from University College London as well as a Diploma in Implant Dentistry from the Royal College of Surgeons. I have worked in private dentistry for 33 years now and I have practiced all modalities of dentistry.

'At my practice the aim is to offer patients a full range of private cosmetic and general dental treatments and as such, I have invested in the latest technology. I specialise mainly

in implant dentistry and the CBCT machine enhances my workflow significantly. It provides me with all the information I need to inform the patient immediately about the following:

- Yes, there is enough bone available to do an implant/implants safely
- No, not enough bone – will need grafting
- Areas of concern like the IAN or the sinus
- Other possible pathology.

'I find it invaluable with oral surgery procedures as well. In a case (20-year-old female) where I planned to remove the impacted wisdom teeth, I noticed on a PA X-ray that the periodontal ligament space on the root of the LL7 between the LL7 and LL8 was not clearly visible. I decided to take a CBCT and I found that the D root of the LL7 had been resorbed by the LL8. The resorption was into the nerve and the LL7 would have needed root canal treatment. That changed our treatment plan completely – we extracted the 7, allowed the 8 to erupt and then closed the space orthodontically.

'I also use it for orthodontics. Recently, had a little boy that had two canines that were palatally impacted. This was very clear on the CBCT scan. On a traditional radiograph, I would have been able to see the impaction, but I would not have been able to determine the position of the teeth.

'I also use CBCT scans a lot with regards to root canal treatment because it gives me a much better view of the position and the length of the roots as well as the pathology around them. Often, on a normal X-ray, the pathology on a palatal root is obscured by buccal roots, palatal bone, sinus overlapping. On the CBCT it is very clear.

'The CBCT reveals so much that is not visible on a normal X-ray, which makes it easier to visualise everything with greater clarity. In fact, I would say to those practitioners who are not using 3D imaging technology yet, that I no longer trust my 2D imaging anymore. Although

I still use normal X-rays when diagnosing decay, for everything else I feel as if I was 'working blind' without my CBCT scanning equipment. I can think of many times when the machine has been crucial.

'After doing my research and reading reviews, I chose the Vatech PaX-i3D Smart because I thought that it had everything I needed from a CBCT system. The learning curve to achieve successful operation was short and the software as well as the actual machine was both easy to use and manage. The thing that makes the PaX-i3D different to other CBCT scanners that I have used is that I can manipulate the image to the area of interest and the angulations that you can achieve are excellent. For example, if I want to look at one specific tooth, I can isolate that area very effectively, which I think is a very positive aspect of this machine. As well as being user-friendly the PaX-i3D Smart is very patient-friendly, there is no discomfort for them and it is low exposure, so it reduces any unnecessary X-ray radiation.

Along with the PaX-i3D Smart I found Vatech to be extremely professional and the CT Rental Scheme that was offered to me was very attractive. The system was delivered on time and the training was also excellent. As well as this, whenever I had a query the Vatech team were available and pleased to help. My experience of Vatech is very positive! ●

A full list of references is available. Please email Andy.Myall@fmc.co.uk

DR WINIFRED VAN RENSBURG

Dr Winifred Van Rensburg is the principal dentist at Rainbird House Dental Practice in Brentwood, Essex. She graduated from the University of Pretoria in South Africa in 1985 and has a Diploma in Sedation and Pain Management from University College London as well as a Diploma in Implant Dentistry from the Royal College of Surgeons. She has interests in implantology, orthodontics and endodontics and treating patients with dental anxiety. Winifred is also a mentor and is currently a member of the BAOS (British Association of Oral Surgeons), ISCD (International Society of Computerised Dentistry), ADI (Association of Dental Implantology) as well as SAAD (Society for the Advancement of Anaesthesia in Dentistry).

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