PLANMECA

CBCT FOR THE GP

How to become (still) more successful at the dental procedures you already provide.

It is clear that CBCT technology has brought tremendous advantages to dental diagnostics and treatment planning, especially in disciplines such as endodontics, implant planning and oral surgery. But what about 3D for general dentistry? Some might argue that it isn't necessary, considering the levels of radiation historically associated with CBCT imaging. Others might say that 2D imaging has been used successfully for years and there is no compelling reason to change.

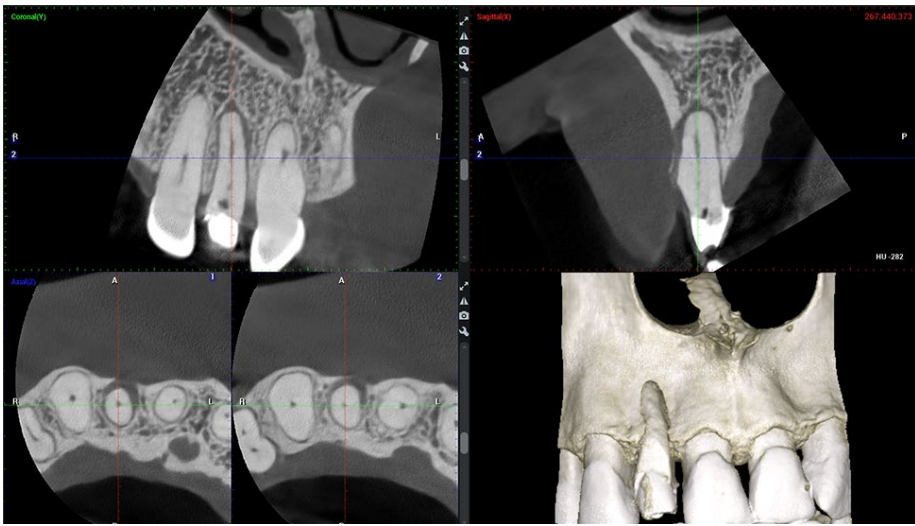
Yet there is a growing number of GPs who are incorporating CBCT imaging into their routine diagnostic workflows. Are they trailblazers? Do they perform more advanced dentistry? Or do they know something you don't? There will always be dentists who fall into the first two categories, but what about the rest? Maybe they've discovered that CBCT imaging makes them better at the dentistry they already do – and more profitable at that.

Let's dive into how.

CBCT MAKES YOU FASTER

While there may be multiple treatment options, there is only one correct diagnosis. 2D imaging can certainly lead to an accurate diagnosis, but sometimes more information is needed. Often the underlying issue has to be substantially advanced before it can be detected. In the early stages of a disease, the patient may already present with discomfort, but intraoral radiographs remain inconclusive.

At this point, many dentists put the area of interest on a "watch", waiting for the condition to either clear up or become more pronounced. This isn't great news for the patient. It prolongs their discomfort and lessens the chance of early intervention. Moreover, the larger the issue, the larger the bill, including a more invasive treatment plan – a lose-lose situation for any patient.



CBCT can provide you with all the necessary information to quickly make a diagnosis with accuracy and confidence. No guesswork, no assumptions, no waiting.

CBCT MAKES YOU MORE CONFIDENT

Many types of pathology are often easier to identify or confirm from an alternative point of view. One clear benefit of 3D is the ability to view anatomy from all dimensions.

With a complete view of the pathology of interest, you won't be caught by surprise. A CBCT scan can provide the information you need to assess the situation, plan the treatment and go forward with confidence.

CBCT images are already used in implant treatment planning. Together with digital planning tools, they can be used to check that the implant is not too close to the mandible canal or neighbouring teeth and to review the quality of the bone around the implant.

In one patient case, **Dr Daron Clark**, a general practitioner in Nashville, TN, USA, found an arterial plaque in the internal carotid artery. The patient was referred to a cardiologist and has embarked on a healthier lifestyle. Although lifesaving discoveries like this aren't regular occurrences, they do happen.

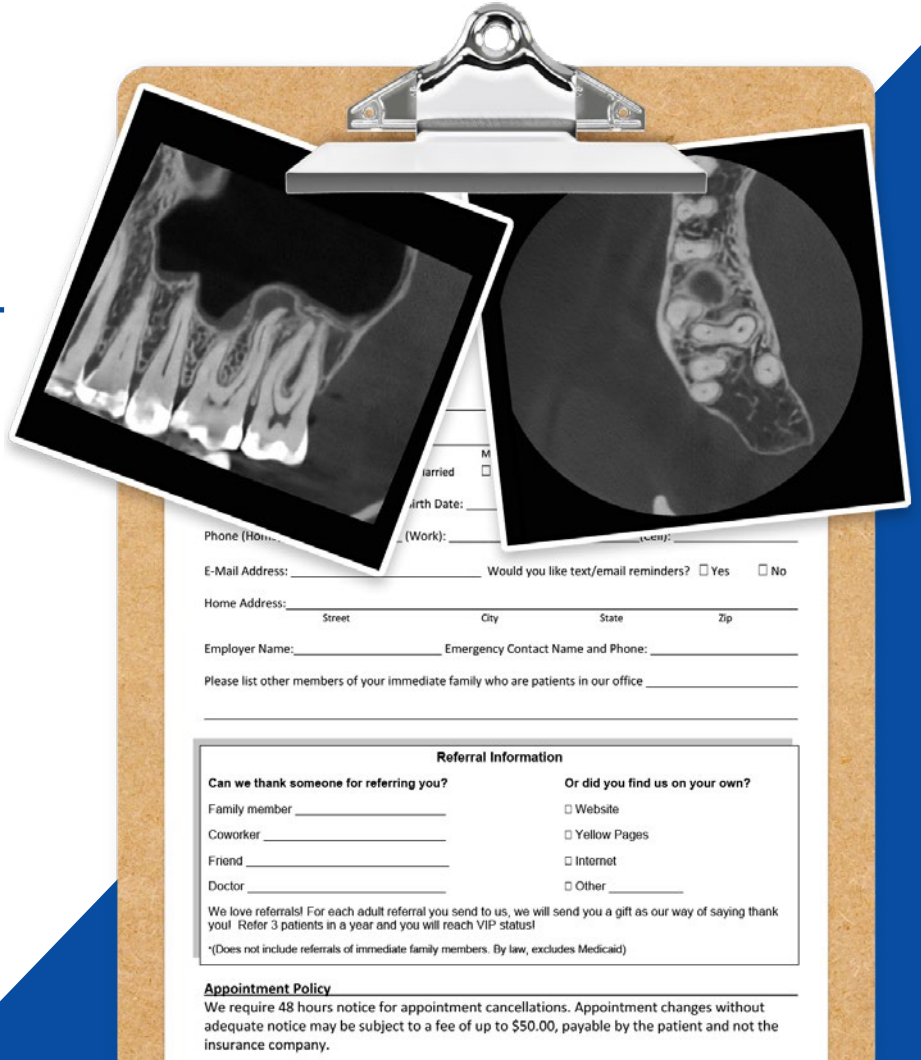
For those of you who are concerned about liability, please note that you are responsible for all the anatomy in *any* radiograph – including a 2D pan. As a result, wouldn't it be better to have an image that is detailed, accurate, and easier to interpret? It doesn't mean you have to know everything about reading CBCT scans, only that you have to know when something looks suspicious and send it to a radiologist for a report.

Dr Austin Westover, a general practitioner in Winchester, VA, USA, had an adolescent patient in for an orthodontic workup. He noticed a thickening on the temporal bone and sent the scan to a radiologist. It was eventually diagnosed as fibrous dysplasia. The patient now sees an ENT to monitor the condition. In this case, the scan potentially saved the child's hearing.

CBCT MAKES YOU BETTER

CBCT can be a highly valuable tool in endodontic cases. 3D images reveal to clinicians, among other things, the number and location of the roots as well as the accessory canals of each tooth. This is imperative for a successful treatment. Statistics show that 74% of first mandibular premolars have a single canal at the apical level, a whopping 25.5% have two and the remaining have three(!).[1]

Additionally, a 3D image allows you to see the tooth in 360 degrees, so that the anatomical structures can be reviewed from all directions. This enables you to plan and treat the case with full confidence.



Lastly, CBCT also allows you to easily verify the amount of available bone in an ortho case and to see from all directions the supporting structures of the teeth to be moved. Without this information, the treatment plan can look quite different, and you might get an unwelcome surprise when the patient returns for a retreatment or has other complications down the road.

CBCT improves communication and case acceptance

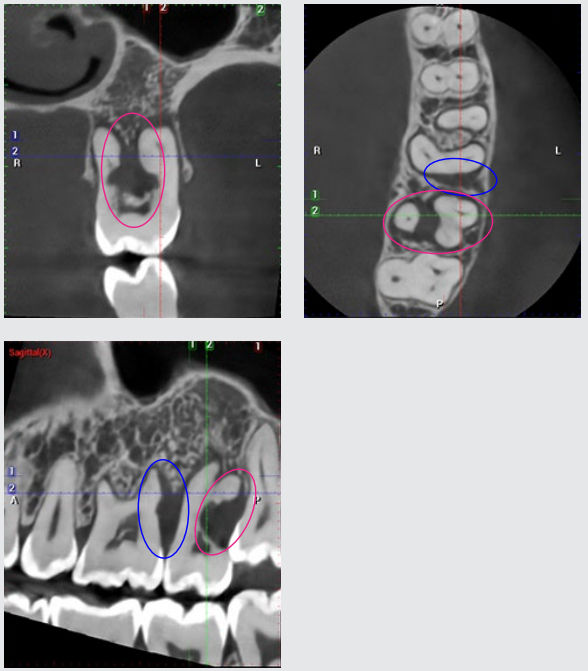
Not only are 3D images easier for you to read, they are easier for your patients to understand as well. While an infection around the apex of a tooth may appear as a faint edge only perceptible to the trained eye on a PA, in a CBCT image the infection is typically clear to see. Observing the image together with the patient can lead to an engaging conversation about oral health, ultimately improving case acceptance.

Additionally, patients often appreciate seeing that their dental practice has invested in the latest technology for their care, while some patients might even leave a practice if they think the equipment seems outdated.

CBCT UNCOVERS MORE DENTISTRY

CBCT technology can sometimes uncover more than was originally expected. In one study of CBCT images, approximately 30% had some form of an incidental finding. Of that number, 4% required immediate attention, while 26% required following up.[2]

In cases where more pathology is discovered, the dentist may consider whether any changes to the treatment plan are needed, discuss the findings with the patient and schedule a follow-up appointment. The patient, in turn, can be sure that solid decisions are made based on clinical information rather than guesswork. This way, CBCT can help both increase patient satisfaction and your practice revenue.



▲ A CBCT image was taken to evaluate the tooth marked with pink. The image revealed that the adjacent tooth also required treatment.

MORE PATIENTS IN, LESS REFERRALS OUT

CBCT allows you to make sound decisions. It's not about taking on all the cases you would otherwise typically refer to a specialist. It's about helping you make intelligent decisions regarding which cases to keep, knowing you can reasonably predict a successful outcome, and which cases to refer to a specialist.

> *I've had conversations with doctors about the results of CBCT imaging, and sometimes they don't seem to believe me," says Dr Daron Clark. "It's a reaction I totally understand because I had to experience it to believe it, too. I discovered so much more asymptomatic pathology in our current patient base by changing our imaging. It has really allowed me to take much better care of my patients.*

THE GROWTH FACTOR

So far, we have mainly discussed what you already do with the patients you have. Next, let's talk about how you can achieve personal and professional growth by adding CBCT capabilities to your practice.

Advanced treatment services

3D imaging can open up a world of new possibilities – including implants, airway, orthodontics and TMD. Although each of these areas requires additional training, many dentists often discover a renewed passion for their craft – not to mention a new revenue stream for their clinic. As your practice evolves over time, with CBCT you will never be limited by your imaging technology. You can successfully plan treatments for even complex cases in a way that is likely to be both extremely rewarding and highly profitable.

Attracting new patients

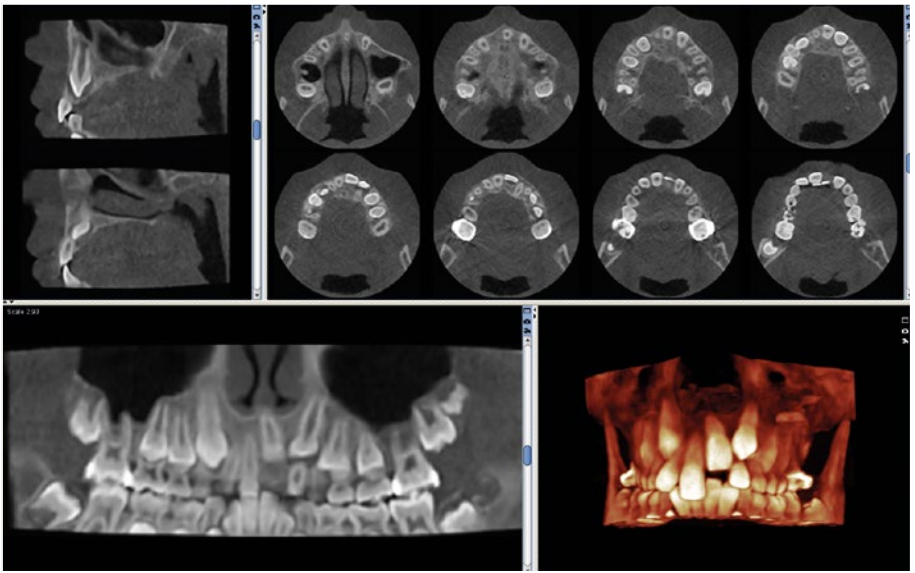
Recommendations are the leading source of new patients in a dental office. For many patients, it is invaluable to have a doctor they can trust to manage all their oral health needs. And when your patients are happy, they are also likely to refer family and friends – which can account for up to 70–80% of new patients in your practice.[3]

WHAT ABOUT RADIATION?

All X-ray imaging should always take account of the patient dose levels in line with the ALADA (As Low As Diagnostically Acceptable) principle. That's where **Planmeca Ultra Low Dose**™ comes in.

Planmeca Ultra Low Dose is a 3D imaging protocol which enables CBCT imaging with lower patient doses. The protocol decreases the exposure values and thus the patient dose, while Planmeca's other intelligent 3D imaging algorithms maintain the image quality at a diagnostically acceptable level – all to achieve the optimal balance between image quality and patient dose. It is a scientifically proven method that is ideal for a wide range of clinical cases, from implant planning to orthodontics.*

*) For scientific studies, see planmeca.com.

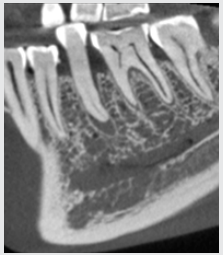


▲ FOV Ø8.5 x 5 cm / voxel size 400 µm. Effective patient dose 4.0 µSv.

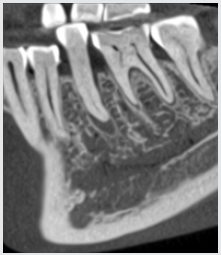
Simple and smooth – activating the Planmeca Ultra Low Dose protocol is as easy as pressing a button on the 3D unit's control panel.

Planmeca Ultra Low Dose comes standard with all Planmeca CBCT imaging units and can be used with any and all volume sizes.

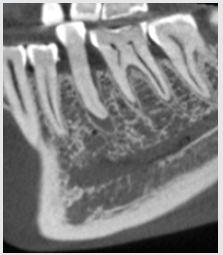
Read more on our website about how Planmeca Ultra Low Dose helps clinicians everywhere adhere to the ALADA principle in their practice.



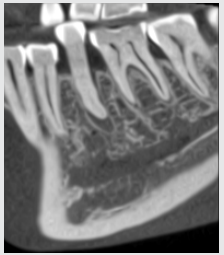
▲ **HD resolution**
voxel size 150 µm,
patient dose
~134 µSv



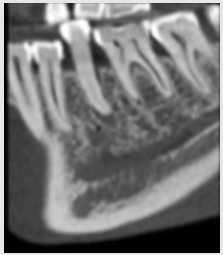
▲ **HD resolution with Ultra Low Dose**
voxel size 150 µm,
patient dose
~32 µSv



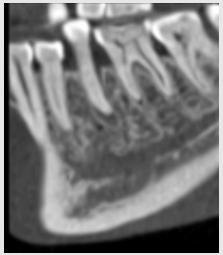
▲ **Normal resolution**
voxel size 200 µm,
patient dose
~86 µSv



▲ **Normal resolution with Ultra Low Dose**
voxel size 200 µm,
patient dose
~20 µSv



▲ **Low dose resolution**
voxel size 400 µm,
patient dose
~30 µSv



▲ **Low dose resolution with Ultra Low Dose**
voxel size 400 µm,
patient dose
~6 µSv

Planmeca 3D imaging

Compare our 3D imaging units to see which works best for your clinic.

Planmeca Viso®
G5

Planmeca Viso®
G7

Planmeca ProMax®
3D Classic

Planmeca ProMax®
3D Plus

Planmeca ProMax®
3D Mid

Now is the time to talk to a Planmeca representative and bring Planmeca 3D into your practice.

Find a distributor

Schedule a demo

PLANMECA

www.planmeca.com

[1] Ee J, Fayad MI, Johnson BR. *Comparison of endodontic diagnosis and treatment planning decisions using cone-beam volumetric tomography versus periapical radiography.* J Endod. 2014 Jul;40(7): 910–6. | [2] Scarfe WC. *Incidental findings on cone beam computed tomographic images: a Pandora's box. Oral Surg Oral Med Oral Pathol Oral Radiol.* 2014 May;117(5):537–540. | [3] ADA Marketplace. *How to get more referrals from your patients.* https://marketplace.ada.org/blog/dental-marketing/dental-referrals/how-to-get-more-referrals-from-your-patients.

See also: Ludlow JB, Walker C. *Assessment of phantom dosimetry and image quality of i-CAT FLX cone-beam computed tomography.* Am J Orthod Dentofacial Orthop. 2013 Dec;144(6):802–17. https://www.sciencedirect.com/science/article/abs/pii/S0889540613007749 | Ludlow JB, Koivisto J. *Dosimetry of orthodontic diagnostic FOVs using low dose CBCT protocol.* 2015. University of North Carolina Chapel Hill, School of Dentistry, Chapel Hill, North Carolina, University of Helsinki, Department of Physics, Helsinki, Finland. https://www.sciencedirect.com/science/article/abs/pii/S0889540613007749 | Liljeholm R, Kadesjö N, Benchimol D, Hellén-Halme K, Shi XQ. *Cone-beam computed tomography with ultra-low dose protocols for pre-implant radiographic assessment: An in vitro study.* Eur J Oral Implantol. 2017;10(3):351–59. | van Bunningen RH, Dijkstra PU, Dieters A, van der Meer WJ, Kujipers-Jagtman AM, Ren Y. *Precision of orthodontic cephalometric measurements on ultra low dose-low dose CBCT reconstructed cephalograms.* Clin Oral Investig. 2022 Feb;26(2):1543–50. https://link.springer.com/article/10.1007/s00784-021-04127-9 | Yeung AWK, Harper B, Zhang C, Neelakantan P, Bornstein MM. *Do different cone beam computed tomography exposure protocols influence subjective image quality prior to and after root canal treatment.* Clin Oral Investig. 2021 Apr;25(4):2119–27. https://link.springer.com/article/10.1007/s00784-020-03524-w | Ihlis RL, Kadesjö N, Tsilingaridis G, Benchimol D, Shi XQ. *Image quality assessment of low-dose protocols in cone beam computed tomography of the anterior maxilla. Oral Surg Oral Med Oral Pathol Oral Radiol.* 2022 Apr;133(4):483–491.