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By Sirona

Salzburg, Austria: The new T4 product class instruments from Sirona give dentists and especially dental students high German quality that is particularly cost-efficient.

Instruments are an indispensable aspect of dentistry. It is therefore extremely important that dentists can fully rely on them. This is why Sirona now offers the German quality T4 class at a rather low price, making these products particularly interesting for dental students: They can acquire all of the important instruments they need for their studies in a student kit.

“This kit contains reliable and durable products at a very competitive price for students or young people who want to set up their own businesses,” said Product Manager Eric Bernet: “The T4 products fulfill Sirona’s high quality requirements in terms of design as well as hygiene and ergonomics.”

In regards to the design and ergonomics of the T4 product line, Sirona has opted for proven quality. The instruments lie perfectly balanced in the dentist’s hand and are ergonomically shaped. The material is both non-slip and easy to clean. The instruments can be sterilized in an autoclave or cleaned and disinfected in a thermosinfector. The T4 products include a straight and contra-angle handpiece, the T4 Racer turbine and an air motor. The kit is available either with a Midwest 4-hole or Borden 3-hole connection and can be used with all common treatment centers.

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CPD Dubai to run multidisciplinary day

The Dean of DSM, Professor David Wray, will be presenting a lecture on ‘Common Oral Medicine Problems Presenting in the Dental Practice’. Professor Wray commented, “Overall the day presents a fantastic opportunity for General Practitioners, specialists and students to hear from academics who specialise in these fields; and to come away with their knowledge refreshed, a better understanding of cases that present in their everyday practices and of the means to manage them.”

Professor Wray, formerly President of the British Society of Oral Medicine, continues, “It will also be a fantastic opportunity for dentists practising in the region to meet some of our professors from the Dubai School of Dental Medicine, find out more about what we do here, the types of patients we treat, who and what to refer. We are very much looking forward to meeting practitioners from the region.”

Another of the specialists presenting on the day, Professor Athanasios Athanasiou, a renowned Orthodontist who was President of The World Federation of Orthodontists (WFO) between 2005 and 2010, will be providing a lecture on the ‘Diagnoses and Temporomandibular Disorders’. When asked about his upcoming presentation, Professor Athanasiou commented, “There is a lot of misinformation given to dentists on this topic and by dentists to patients. It is an area about which dentists often feel they lack knowledge. I intend to give attendees a comprehensive overview of this range of disorders, the differing causes behind them and the evidential base for the different treatment modalities. I am sure attendees will leave feeling more confident about their examination, diagnosis and management of patients suffering Temporomandibular Joint Disorders.”

Professor Crawford Bain, a specialist in Periodontics, Prosthodontics and Restorative Dentistry, with more than 30 years of experience, will be presenting ‘Non-surgical Periodontics’. More than Hygiene Phase Therapy where amongst other things he will explain why practitioners should be focusing on ‘cause-related therapy’, rather than ‘hygiene phase therapy’.

The day will be rounded off by Professor Manal El Halabi, Professor of Paediatric Dentistry, talking about Molar Incisor Hypomineralisation, its causes and management. This is a topic that should be of great importance to dentists in the region where we have such a large school-age demographic. This is a condition that can sometimes be overlooked or misdiagnosed in everyday practice. It is one that practitioners report they are encountering more frequently and for which they are often seeking specialist help. Professor El Halabi’s presentation should give attendees an improved understanding of the causes behind this condition, its prevalence and, most importantly, how best to manage affected teeth.

Managing Director of CPD Dubai, Nicolas Bell, said, “We have been extremely fortunate that four of the teaching faculty as DSM will be sharing some of their vast experience on the day. As well as some extremely worthwhile and important topics it should be a good opportunity for dentists in the region to put some faces to names and make contact with well renowned specialists in these fields.”

The day takes place at The Address Hotel, Dubai Marina on November 29th. Prices include lunch, valet parking and refreshments throughout the day.

Presentations will be as follows:

Common Oral Medicine Problems Presenting in the Dental Practice – Diagnosis and Management

Diagnosis and Management of Temporomandibular Disorders

Non-surgical Periodontics

More than Hygiene Phase Therapy

Molar Incisor Hypomineralisation and Space Management in the Mixed Dentition

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Located in Dubai Healthcare City (DHCC), Dubai, UAE
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Bulgaria

Endodontic retreatment and adhesive restoration of structurally compromised second premolar

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The decision for tooth-coloured partial restoration is made, the operator must choose between two materials — composite or ceramics. The benefits of the former (less abrasiveness and brittleness, lower costs, easy to polish and repair, user friendly) encounter the strength, inertia and biocompatibility of the latter. While some studies indicate that ceramic and composite inlays provide similar fracture resistance on endodontically treated premolars, other studies conclude that cuspal coverage is required. Composite resin may be more beneficial in endodontically treated posterior teeth compared to ceramics pertaining to its greater survival rate, fatigue resistance and more favorable failures. This can be explained with the more friendly stress distribution of composite resin onlays, confined above the cemento-enamel junction.

The present report describes the microscopic retreatment and the definitive restoration of a grossly decayed perforated maxillary premolar. The reasons for the applied treatment are discussed.

Case report

A 54-year-old male patient reported to the department of Operative Dentistry and Endodontics, complaining of symptoms from another tooth. The radiographic examination revealed inadequate endodontic treatment and perforation with radiolucent area at the apex of tooth 15. The tooth was endodontically treated four years ago.

Medical history was non-contributory. Probing was within normal limits. Local anesthesia with Ultracaine DS was administered. After the removal of the old restoration (Fig. 2) and cleaning up the decay, a pre-endodontic buildup was accomplished.

Undercuts were not removed but were made out with the composite resin. The operative field was isolated with rubber dam (Fig. 3). The access was performed in ALGIII and Matrix band (Fig. 5). While keeping the cavity open with gutta-percha points and Cavit, the total etch technique was performed. Enamel and dentin were covered with adhesive (Prime Bond NT, Dentsply) and polymerized for 10 seconds. Bulk-fill flowable composite was applied (SDR, Dentsply) and polymerized for 40 seconds in order to create a reservoir for the irritants during endodontic retreatment (Fig. 4). After the removal of gutta-percha points and Cavit, the real canal (blue arrows) and the perforation (red arrow) were easily accessible (Fig. 5).

Since the artificial canal was previously obturated with a paste, cleaning, with a combination of hand files, ultrasonic (Pro Ultra 5 and 6) and irrigation with citric acid was used. To confirm the effectiveness of the cleaning procedure, an intra-operative X-ray was done (Fig. 6). Because of the different angulation of the beam, it seems as if the perforation is on the level of the crestal bone, which is not the real case.

For cleaning and shaping of the real root canal, the following protocol was used:

1. Glide path was established using SS K-files 8, 10, and Pro Taper Files 015, 016, 017 (Dentsply Maillefer).
2. The upper two-thirds was prepared using S1 and S2 files from Pro Taper system (Dentsply Maillefer).
3. The apical third—20 (04) GTX file (Dentsply Maillefer). Throughout the whole procedure, irrigation with Citric acid (40%, Cerkamed, Poland) and NaOCl (2%, Cerkamed, Poland) was used.

We preferred S1 and S2 files because of their ability to brush against the canal wall, which is very useful in cases with oval cross sections, where it is of paramount importance to clean all aspects of the root canal spaces. For the apical one-third we chose landed GTX file, because the canal was very narrow and we had the possibility to transport the apical foramen. Both artificial and true apices were obturated using warm vertical compaction of gutta-percha and MTAD (Filling, Amalgus, Brazil). On the post-op radiograph, the preparation and obturation seem short, but this was the reading we repeatedly got with our apex locator (BayPex5, VDW, Germany) (Fig. 7).

After the completion of the endodontic retreatment, the pre-endodontic buildup was left at place and the endodontic access was restored again with SDR, creating a core, on which an onlay preparation with diamond burs (Mani Inc.) was performed (Figs. 8 & 9). The enamel margins were exposed and unsupported enamel prisms were removed using fine-grit diamond points. The remaining tooth structure was prepared to reseat a built-up with the restoration margins. Internal line angles were rounded and the walls provided 5 to 15-degree path of divergence. The proximal boxes preparations extended to the existing composite, since they were located in the dentin.

The dimensions of the preparation provided at least 2mm of interocclusal clearance, which could be verified on the impression. A condensable siliccone impression was taken (Fig. 10). A custom made provisional restoration was created using indirect technique and temporarily cemented with a non-eugenol luting agent (Temp Bond NE) (Fig. 11). The fitting aspect of the restoration was sandblasted by the dental technician.

At the second appointment after assessment of the prepared restoration, removal of the provisional and cleaning
of the preparation the fit and aesthetics of the overlay were evaluated. Rubber dam was placed and the preparation was cleaned with acetone, etched with 57 per cent phosphoric acid for 15 seconds, rinsed and dried. The fitting aspect of the restoration was also cleaned with acetone prior to cementation. A dual-cure self-adhesive luting resin in (SmartCem2, DENTSPLY) was applied to the walls of the preparation and the restoration was placed with firm pressure fully seated. The excess cement was removed with an explorer, a #12 scalpel blade and dental floss in the interproximal area after five-second polymerization that brought the cement to a “rubbery” stage (Figs. 12 & 15). The restoration was covered with glycercin and finally cured for 60 seconds from each side (Figs. 14 & 15). The minimal occlusal adjustments were done with fine diamond burs under water coolant. Finishing and polishing were accomplished with the Enhance system (DENTSPLY) (Fig. 16).

Once finishing and polishing was done, a 57 per cent phosphoric acid gel was applied for 15 seconds to clean the surface of the restoration and to acid etch the marginal enamel. After washing and drying, the nanofilled adhesive (Prime&BondNT, DENTSPLY) was applied and permitted to rest for 10 seconds to permeate the surface and marginal fissures created by the finishing process. The adhesive was then light-cured for another 40 seconds (Fig. 17). At the six-month recall, the tooth was asymptomatic and the patient was completely satisfied (Figs. 16,19).

Discussion
This case report demonstrates endodontic retreatment and composite overlay as definitive restoration for a compromised tooth with minimal coronal tooth structure.

The two most important factors in terms of prognosis of treatment of perforations are the age of the lesion and degree of bacterial contamination.5 In our case, the previous endodontic treatment was done four years ago. The long period of time is not favourable for the prognosis, but since the perforation is in the apical third the likelihood of bacterial contamination is low. After the patient has been informed, he chooses ortho-grade endodontic retreatment as a treatment modality.

The material of choice for perforation repair is MTA (mineral trioxide aggregate). Because of the small size and apical position of the lesion, we decided to treat it like a second canal and to obturate with gutta-percha and MTA based sealer. The absence of worsening of the periapical conditions in the six months post-op X-ray (Fig. 19) supports this approach, and the patient is still under observation.

Although still debatable, recent comprehensive meta-analysis by Gillen et al.6 demonstrates that a well-fitting, bacteria-proof final restoration has the same importance for the long-term prognosis of the endodontically treated tooth as does the well-performed endodontic therapy. Besides the prevention of coronal microleakage, a key factor for the long-term survival of the endodontically treated tooth appears to be the amount of remaining tooth substance,14 which is determined by the dimensions of the final restoration. So an ideal treatment option for an endodontically retreated tooth seems to be adhesively bonded restorations that preserves as much of the tooth structure as possible.

An endodontically treated posterior tooth presenting with extensive decay is most frequently restored with a post and a crown. That is intractable, because crowns are well-established and known, clinically proven restorative modality, and still a considerable amount of research is being performed in this direction.10 On the other hand, partial toothcoloured restorations are recognized as valuable alternatives to full crown cases, and questions are raised if intracanal posts are necessary at all for an endodontically treated tooth.

Since their introduction in 1980,9 indirect laboratory processed composites are being continuously improved in their physical and mechanical properties. Now this restorative option offers adhesive, biomimetic approach far less aggressive than crowns and far less technique sensitive than ceramics.

Achieving a perfect marginal quality with composite overlays, when gingival margins are located in the dentin, continues to be critical even when new adhesive techniques and systems are used.10 The application of a composite base underneath indirect composite restorations represents a feasible non-invasive alternative to surgical crown lengthening in case of long confluent margins from an intra-cervical to a supra-gingival position. This also permits the placement of rubber dam for absolute isolation. Surgical crown lengthening involvement also compromises the periodontal tissue support of neighboring teeth.9 We did this relocation simultaneously with the pre-endodontic build up with SDJ. This material has the necessary mechanical stability of low viscosity resin composite and in the same time polymerization shrinkage stress similar to regular viscosity composite.

To simplify the procedures for bonding indirect restorations, resin cements have been introduced recently that are promoted as self-adhesive, i.e. do not require a separate adhesive application step. Manufacturers claim that these cements are hydrophilic when mixed (acidic phase) but become hydrophobic (neutral pH) upon reaction with the tooth structure. The bond strengths to the tooth structure are questioned. In our case we decided to additionally etch the enamel margins of the preparation, although not recommended by the manufacturer, because the procedure is simple and, as Duarte et al.18 and de Andrade et al.19 demonstrated, improves the bond strength of the restoration.

We preferred condensation-type silicone impression material for its better ability to reproduce the surface characteristics of low viscosity resin reported by Takano et al.9

The surface and margins of the restoration were sealed with filled adhesive. This treatment improves the marginal adaptation,20 and it could be demonstrated that adhesives are superior to specially designed resin coating materials.

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Clinical indications for a composite-metal PFM restorative

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By Barry F. McCrindle, DMD

Although “metal free” has been a core value in some dental circles, even when it comes to indirect restorations, all ceramics have their limitations. When parafunctional habits, wear of the existing dentition, the need for subgingival margin placement, masking of discolored tooth structure or the necessity of conventional cementability contraindicate the use of these newer dental materials, the traditional porcelain-fused-to-metal restoration is called for. It has, however, fallen out of favor with many practitioners primarily because of its cosmetic shortcomings in the esthetic zone.

An alternative to conventional PFPs has proven itself as a prime option under these circumstances, both functionally and cosmetically. Captek (Argen Corp., San Diego) is a composite metal, not an alloy, whose optical properties accurately mimic those of enamel’s underlying hard and soft tissues.

In the hands of a knowledgeable ceramist, ultimate vitality can be obtained by using this system (Figs. 1, 2), and the shade matching attained with this material is remarkable (Fig. 5).

In addition, Captek has demonstrated micromechanical interlock as its primary mechanism of porcelain adhesion, which in my experience has resulted in the superior strength and fracture resistance that is often required in specific clinical situations. The Captek system uses a unique bonding mechanism (referred to as the Universal Porcelain Coupler or UCP) between the coping material and porcelain (or composite resin) that extends gold and platinum microfilmaments from the Captek surface. These microextensions provide exceptional mechanical bond strength. This system was developed because of Captek’s pure, high noble metal composition—and has the advantage of not producing any oxides, a byproduct of the traditional PFM bond—which therefore requires a different method of bonding to porcelain. This Captek bonding process eliminates the conventional grey oxide layer created during adhesion with other PFM and surpasses it in its bond strength. This creates a tenacious bond between the Captek coping and porcelain to provide the necessary retention.1 The elasticity of this micromechanical interlocking diminishes is caused by coefficient of expansion differences that often account for porcelain cracking and chipping.

The UCP on Captek copings provides a color backdrop for the final restoration that is closest to natural tooth structure and resembles the color of dentin nearest to the pulp. These hues of gold and yellow-orange provide the most natural color background for the porcelain as dentin has an inherently yellow-gold color with a vital pulp producing a warm red background.

Therefore, the Captek coping provides the perfect base for any type of veneering—porcelain, acrylic or composite—giving it a warmer and more organic tone.

The UCP’s light-scattering effect also contributes to the natural appearance of Captek crowns. Light reflecting from the coping through the porcelain is scattered by the extensions of the UCP layer, much like it is by natural tooth structure. Crown light and dispersed and fragmented by natural tooth structure due to its roughened porosity and dentin tubuli just as it is by the UCP in Captek.

The Captek coping also exhibits an increased resistance to any type of veneering—porcelain, acrylic or composite—giving it a warmer and more organic tone.

Masticatory forces and everyday parafunction produce vibrations and shocks that can harm porcelain and its underlying supporting structure, whether implant or natural tooth.

Unprotected porcelain may chip and crack during function. Captek protects its porcelain by absorbing masticatory and parafunctional impacts that advance from the point of contact inward. When a restored implant or natural tooth is exposed to these continuous impacts and vibrations, their structure is weakened and the periodontium can be affected. The inner and outer layers of Captek are each 25 microns thick, 97 percent gold and 3 percent silver. These layers are very forgiving and efficiently absorb the shocks and vibrations that travel through the porcelain during routine function. This extraordinary shock-absorbing feature protects the layered porcelain, and it is particularly valuable for implant cases where no periodontal ligament cushioning exists.

What’s more, Captek affords an important alternative for situations of limited space, such as at the lower incisors. With its one-of-a-kind configuration, the Captek coping can be thinner than conventional metal, allowing the technician more latitude in porcelain design with conservative, minimal thickness restorations.

Even though the Captek coping is not cast, its extensively documented marginal integrity and antibacterial qualities2 make it an ideal restorative where subgingival margins are necessary, and I have found in many cases that these properties may afford the clinician more leeway in relation to the biologic width. The coping is made directly on the die model, providing an exceedingly precise fit.

In the Captek protocol, a metal embedded wax is applied in steps directly to a refractory die for the design and construction of the final metal coping, resulting in a highly precise marginal adaptation (Figs. 5–10). Other PFM technologies employ indirect methods that can introduce inaccuracies and distortions to marginal integrity. Captek can also be burnished to further refine its marginal precision. The coping can be sevedged before porcelain layering with different spacers to accomplish just the desired proximity to the tooth and spanning for cement thickness. Any crown and bridge cement can be used with Captek except those that must be light cured for best results. Captek maintains its accuracy through porcelain firing thanks to its internal reinforcing skeleton that resists warpage.

Research studies have found a marginal precision after cementation of 14.5–18 microns in single crowns and bridgegossip.3 Either chamfer or bevel designs can be used with margins in metal or porcelain. When considering the use of this material, he must use a Captek certified laboratory in order to realize its full benefits.

These unique properties are the result of years of extensive research that started in 1972 by two Israelis, Bzakh Shoher, DMD, MS and Aharon White, MDT. Together they have developed several different dental materials, such as RPS (reinforced porcelain system/ Inzoma) and the Renaissance system, which have proven to be extremely bioocompatible with outstanding esthetics in everyday clinical practice. In the year 1996, their research into gold, palladium and platinum metal alloy yielded Captek, when this material was introduced to the international dental community.

In addition, during the following years, Shoher and White man cultivated multiple improvements to the product, the most significant being Captek Nano, which was introduced in 2007. This version allows for the fabrication of longer span bridgework and adds implant-supported restaura tions, which are this material’s broad repertoire.

The elemental ratios have been altered in this process to reflect a composite metal content of 84 percent gold with the higher concentrations of 5.5 percent platinum and 7.2 percent palladium for even greater strength. This permits the varying coping thicknesses,

![Fig. 1 The patient’s worn, misaligned and discolored smile.](image1)

![Fig. 2 The old smile is transformed into a naturally balanced one using Captek crowns.](image2)

![Fig. 3 The first layer of metalized-bonded wax is put in place on the refractory die.](image3)

![Fig. 4 The second layer of metalized-bonded wax is put in place on the refractory die.](image4)

![Fig. 5 Shade matching with Captek and accurate clinical records is virtually perfect. The crown in this picture is in tooth #11.](image5)
Uses

It is often the case that the location of previous restorations, cemental exposure or new carious lesions will mandate the placement of subgingival margin. I have had the experience that because cariogenic oral bacteria are particularly anaerobic, and therefore do not have a significant presence in the subgingival environment, subgingival margin placement results in less recurrent decay. Due to the moisture inherent in situations such as these, a cementable restoration is essential, and of the newer generation in metal-free products, only zirconia will fill that bill.

However, zirconia is among the least esthetic of the ceramic materials. Cepak achieves clearly superior esthetic results intrinsically and, in clinical testing, is given to encourage the most natural soft tissue esthetics as well.4 This quality is explained by the influence of the Cepak coping's warm metal color and its aforementioned bacteriostatic properties, which contribute greatly to gingival health in the esthetic zone, even including semi-precious metal copings, can be problematic (Figs. 11, 12).

Bacteriostasis occurs due to significant impairment of bacterial adhesion to Cepak as compared with other crown and bridge materials. Even in natural tooth structure, and significantly reduces harmful bacteria to the gingiva over time.5 Because Cepak is composed completely of precious metals, it will not react in the gingival environment to cause oxidation.

This lack of oxides is a major advantage for all the Cepak copings surrounding structures from the gingival to porcelain. Oxides from a standard crown's margins can infiltrate the adjacent gingiva, causing inflammation and in some instances, an inflammatory reaction. The Cepak coping, on the other hand, no inflammation in the proximate gingiva, connective tissue or alveolar bone. This way. Oxide formation on standard crown margins can make the tooth less esthetic and in some cases, advance to periodontitis. Cepak's oxide-free surfaces face the occurrence of such reactions.

In conventional crown systems, metals oxidize after porceling, causing an overall grayish look at the margins. Over time, this environment, these standard metals continue to oxidize, further discoloring the marginal porcelain through dispersion of the oxide molecule. Cepak metals will not oxidize in the oral cavity under any circumstances, thus preserving the original color of the restoration. Cepak's composite metal structure also produces a microcircuit of an electrical bipolar stimulus that seems to progressively invigorate the tissue cells around it.6

Gingivitis are now uninterrupted by Cepak, but the production of metal-free composite copings have a significant oxidative effect on these tissues.

Thus, there is comparatively less gingivitis and recession around a Cepak crown than found around other ceramic-metal restorations. Consequently, Cepak has become my material of choice for direct restorations in the esthetic zone that demand subgingival margins.

As any dentist knows, endodontically treated teeth often discolor significantly after such procedures. It is also true that there are some implant cases where it is preferable to use a metal abutment, and in these instances the effect on gingival color can be decidedly negative.7 The translucency of most metal-free restorations will not allow for the full masking of this tooth discoloration or metal reflection, and cosmetic outcomes will be adversely affected when those materials are used under these circumstances.8

As a PFM restoration, Cepak affords ultimate masking qualities, and its excellent esthetic results make it the prime choice in situations where masking abutment discoloration is of prime importance.

The longevity of large restorations can be a major consequence to the treating dentist. Remakes due to functional failure are easy to the dentist not only economically, but in terms of his or her reputation as well. The greater strength of PFM restorations over their metal-free counterparts, even including zirconia units, is well documented in the literature.9 In cases where occlusal or parafunctional matters are of a principal concern, ceramic crowns will be the longest lasting.

Considering Cepak's advanced design capabilities and strength characteristics, there is no disadvantage to using PFM restorations in a smile design case that has wear issues, which could lead to potential failure of all-ceramics are used. It is on this last point that I am met with the most skepticism from colleagues and in leagues during our lectures around the country. There are many practitioners who simply will not believe that a PFM restoration can match the vitality of an all-ceramic product.

I have found in my practical experience that all other things being equal (skill of the laboratory technician in involved, quality of the clinical records provided, etc.), it is easier to fabricate a realistic life-like restoration from a metal-free material, but in the hands of a master ceramist, Cepak can be one of the best materials for a realistic and organic realism that is virtually indistinguishable from nature.10,15

In fact, complex restorative cases blending Cepak and all-ceramic units have been documented to realize a harmonious result.15

Conclusion

Although all-ceramic restorations have been en vogue when it comes to transformational restorative cases in the esthetic zone for some time – even being taught as state-of-the-art in dentists' schools,14 they are not the be-all or end-all where it comes to solving many common clinical situations.

The placement of all-ceramic restorations is much more technique sensitive than its ceramic-metal counterpart, and their long-term function, especially when all occlusal considerations have not been carefully accounted for, is questionable at best in compar-ison.

Contact Information

Dr. Barry F. McRae graduated from Tufts in 1965, and maintains a private practice in Portland, ME. An expert reviewer for ZADA, he has authored numerous articles in the peer-reviewed literature. McRae is an alumnus of The Penney Institute.

He co-founded the Seacoast Dental Group, and is a member of the New Hampshire Dental Cen- niums, in 2005. You may contact him at dmrcr@seacoastdental.com.
Cranmore –
Using CBCT 3D for excellence in patient care

By Cranmore

Cranmore – Using CBCT 3D for Excellence in Patient Care
Cranmore Dental Practice in Belfast is one of the most recent dental practices in Northern Ireland to install a 3D Cone Beam System (CBCT). Dr David Nelson, the clinical director at Cranmore, launched the practice in 2014 and since then has directed its growth through considerable investment in technology.

“At Cranmore” says David, “Our key focus is that we deliver excellence in dentistry to our patients”.

Dr David Nelson himself was the first dentist in Northern Ireland to obtain a Masters Degree in Dental Implantology. His commitment to education is demonstrated in his role as an Undergraduate Tutor at Queens University, Belfast as well as establishing Cranmore as the official Irish Training Facility for the University of Central Lancashire Postgraduate Masters Degree in Implant Dentistry. He is also a Fellow of the International Team for Implantology (ITI).

“Our key focus is that we deliver excellence in dentistry to our patients.”

Until the beginning of last year when a 3D view was recommended, David had been referring patients for a medical CT scan. However he had also been researching the advantages that CBCT was bringing to implantology resulting in his decision to invest in his own site CS 9000 3D System (CS was previously branded Kodak).

David explains, “At Cranmore it is our protocol to use a CT scan for sinus graft procedures. Previously we would send the patient for a hospital spiral CT scan. However we now carry these out in house on our own CBCT scanner. This is more convenient and

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Fig. 1
Dr. David Nelson positions a patient for a 3D scan on the CS 9000 3D System.

Fig. 3, 1 and 4
The 3D volume clearly shows a spherical mass in the left sinus and fully occluded right sinus which shows as being more opaque which is not visible in the corresponding 2D OPG.
time efficient for the patient, combined with quicker diagnosis and commencement of treatment. Not only is the imaging exceptionally clear but the dose to the patient is significantly reduced compared to the spiral CT scan.

This particular case shows how important it is to have a CBCT scan available rather than to only have a 2D OPT.

On the pre-op OPT (pathology and decay treated before more complex treatment commenced) from the initial assessment we can see that sinus augmentation will be required on both sides with a lateral approach on the left and a crestal approach on the right. What the OPT does not show is that there is pathology in both the left and right maxillary sinus. The left sinus appears to have a retention cyst and the right sinus is more occluded. This pathology needs referred on for definitive diagnosis and treatment as required. My sinus pathology is referred to Eilad Qudairat, a Consultant Maxillofacial Surgeon.

In this case the pathology on the left was a retention cyst which was not treated and the right pathology was treated using a conservative medical approach initially. If this did not work then a FESS procedure may have been required.

The other benefit of the CS 9000 CBCT scan is that its field of view is relatively small and can be set up not to take orbits and cervical spine. This is important as it means that the dentist does not have to read and diagnose possible pathology in structures that they may not be comfortable doing.

“The CS 9000 CBCT scan is that its field of view is relatively small and can be set up not to take orbits and cervical spine”

Cranmore’s CS 9000 3D System was supplied and installed by Simon Shawe of Dentaquip, Ireland. Dentaquip has been supplying the Dental industry with products and services for over 50 years. Included in their customer base are; the Royal Victoria, Belfast City and Ulster University Hospital and Queens University.

Initially David attended 3D application training at another CS 9000 3D site, Clinic 56 in Oxford. David, in partnership with Dentaquip and Carestream Dental, is now running his own 3D training events at Cranmore Dental Practice.

These 3D training sessions demonstrate the growing cooperation between Dentists, Dealers and Suppliers in coming together to share their knowledge and experience of new technology with the aim of providing better and safer patient treatment.
“Dental technicians forum at IDEM Singapore 2014”
Interview with Dr Mollova, Singapore

By John Battersby, PR consultant for Bridges Mkt, Singapore

Singapore: We caught up with Dr Mollova in Singapore for the 2nd Asia-Pacific edition of the CAD/CAM and Digital Dentistry International Conference, held there at the beginning of October. A well-known advocate of technology and continuing education for all dental professionals she was happy to give us her take on the adoption of both in Asia.

John Battersby: You have been involved in promoting continuing education for dental professionals for quite a few years, what are the major changes you have seen in that time?

Dr Mollova: I think in recent years there has been a growing acceptance of the need for continuing education for the entire dental team not just the dentists. That is especially true for dental technicians as without constant training they can’t hope to keep up with the rapid advances in technology. I hope that in the future we will see more countries in the Asia-Pacific region requiring a minimal number of CPD credit hours per year for dental technicians as Singapore already does.

Has the emphasis of the Centre for Advanced Professional Practices (CAPP) training programmes altered since you started the company?

The most obvious and biggest change since CAPP was set up 10 years ago has to be the exponential growth in CAD/CAM technology and digital dentistry in general. And I think they will remain the fastest growing technology in dentistry for some years to come.

Your events are well established in Europe and Middle East but this is only your second event in Asia-Pacific, is the region lagging behind in the adoption of CAD/CAM and other digital technologies?

The Asia-Pacific is a huge and very diverse region so it is difficult to generalise. Some countries like Singapore and Australia are advanced and wealthy economies while others like Vietnam and Cambodia are still developing so it is unfair to compare them to more established or wealthier markets such as Europe and the Middle East.

There certainly seems to be a growing appetite for conferences and seminars dealing with the topics. I will be back in Singapore in April for IDEM Singapore 2014 which is introducing a new track especially for dental technicians called the Dental Technician Forum which will include several lectures on the topic of CAD/CAM as well as other subjects such as the latest implant products and techniques. An event co-organized by CAPP and Koelnmesse.

For a country generally thought of as pro technology and innovation Singapore has been surprisingly slow in adopting CAD/CAM and Digital Dentistry, do you think that will change?

I think that is already changing, the fact that the Singapore Dental Association and Koelnmesse invited us to run a Dental Technician Forum at IDEM Singapore next year is proof of that; as is the overwhelmingly positive response that our own CAD/CAM and Digital Dentistry International Conferences have received.

So you don’t think there is reluctance on the part of some labs and technicians to adopt CAD/CAM and other Digital Dentistry technologies for fear of being replaced by them?

I doubt that is the case. There will always be a need for technicians, for highly skilled pro-
Meet the 3Shape D900 Scanner
- the “cream of the crop”

By 3Shape

Earlier this year, 3Shape presented its latest technology wonder for 3D scanning in dental labs - the 3Shape D900 with color scanning capabilities. The new scanner combines advanced technologies with a strong focus on speed and accuracy - while providing new features for productive workflows and optimal user experience.

More cameras – more speed

The 3Shape D900 has 4 cameras, rather than the 2-camera platform found in previous 3Shape scanner models. While 3Shape’s 2-camera D700 series and D800 series are already considered among the world’s fastest, the D900 takes scanning speed even further. With more cameras on board, the D900 can capture 3D data even faster. For comparison, the scan-time for a single die is 15 seconds on the D900, and 25 seconds on the D700 and D800.

The 3Shape D900 combines texture scanning and Real-Color™ scanning technology that allows technicians to capture their color guidance markings directly off the model, and bring these into the design process. For some labs, the specific color of the gypsum is a significant element in their workflow, and the D900 lets them duplicate this in CAD/CAM. As one dental technician stated while examining a D900 scan result on the screen... “It’s like holding the model in your hand.”

New Multi-Die scan technology for high productivity

The 3Shape D900 facilitates a new high-speed Multi-Die technology that captures and registers all dies on the re-designed multi-die plate using a single scan sweep, without mechanical processors to position the dies. This feature, combined with the many new technologies in the D900, make it the perfect choice for large, high volume production-oriented labs that are working with all types of dental indications. See the video – Using color scans when designing Removable Partial.

See texture color scans created by the D9000 and learn how they can be used in the lab. Video - Dental System 2015 - “Removal Partial Design”. You can see it at youtube.com/3Shape or scan the QR code.

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This is where Corega fits in


¹When used as directed, in vivo
fessionals who are experts in the use of the machines that make the prosthodontics that modern dental practices rely on to stay in business. The machines and technologies they use may change from generation to generation but the need for experts to work them will always remain. So as long as technicians keep their skills and knowledge up to date they will always be a vital part of the dental team.

What do you think will be the next big thing in CAD/CAM and Digital Dentistry; do you see 3D printing making a big impact?

Predicting the impact of new technologies is always difficult; in the 1980s all the pundits were predicting that computers would lead to paperless offices by the end of the century but instead in the second decade of the new century we see that because computers have made the handling of data and the process of document printing so much easier we go through more paper than ever. Having said that, I have a feeling 3D printing will have a big impact on everything and every industry in the future but I think it is too early to predict which industries in particular and to what extent.

“3D printing will have a big impact on everything”

Of course 3D printing is already with us in dentistry and I am sure that as new materials and technologies develop, to exploit it will become more common place but like all the other new manufacturing technologies it will still need technicians to run it.
FKG presents TotalFill, a revolutionary pre-mixed bioceramic sealer paste

By FKG

For FKG Dentaire SA, of Swiss city La Chaux-de-Fonds, all stages of each dental treatment should benefit from the very latest technology and best products. FKG is bringing a revolutionary bioceramic sealer paste to market. Setting time is reduced by half, it does not shrink when drying and has increased resistance – making TotalFill BC Sealer a versatile ally and reliable tool for dentist and endodontists alike.

Gone are the days when a trip to the dentist meant waiting for hours to be able to eat! A new sealer paste system is revolutionising dentists’ treatment rooms. The bioceramic paste comes pre-mixed in a syringe, and is extremely simple to use. Its hydrophilic nature means it is possible to clean the tooth immediately following the intervention. And what’s more, a perfect seal between the tooth, the gutta percha and the sealer is guaranteed, as there is no shrinking, either during setting or thereafter. The fluidity of the paste ensures a perfect three-dimensional fit, filling all voids. It is radiopaque and can even be reworked.

“Patient comfort, as well as easing practitioners’ workloads, have always been our guiding principles in our goal to offer the highest performing instruments and products” emphasised Thierry Rouiller, CEO of FKG Dentaire. “Thanks to its biocompatibility, TotalFill BC Sealer eliminates all risk of rejection or allergic reaction. During setting and the following hours it is anti-inflammatory and antibacterial, which helps prevent post-intervention complications.”

As TotalFill has the same biological characteristics as dentine, it even activates regeneration.

“These products represent a major advance in bonded root filling restorations. A high pH during setting, biocompatibility when set and dimensional stability are important advantages over traditional root canal sealers” said Dr. Martin Tropfe, clinical professor at the University of Pennsylvania.

Available
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2. TotalFill BC Sealer Preloaded Syringe (1.5 g)
3. TotalFill Root Repair Material (RHM) Putty Jar (2.5 g)
4. TotalFill BBM Paste Preloaded Syringe (1 g)
5. BC Points/Paper Point Assortment Wheel (.04 or .06)
6. BC Gutta Percha Coated Refill .04: 25, 35, 40, 50 Refill .02: 40, 45, 50, 60 Other sizes on request

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*These products represent a major advance in bonded root filling restorations over traditional root canal sealers*
FDI appoints two CE program regional directors

The FDI Council has approved the appointment of two new Regional Directors for the FDI Continuing Education Programme. They are Prof. Mounir Doumit (Beirut) for the Middle East and Dr. Damian Elias Barsanti (Argentina) for Latin America. They will be working on the 2015 FDI CE Programme.

Prof. Mounir Doumit (Lebanon) CV:
Specialist in Public Dental Health Dentistry (P.D.H.D) and consultant and collaborator in Oral Health projects with the Lebanese Ministry of Public Health (M.P.H). Professor (P.H.D) and Dean of the School of Dentistry at the Lebanese University. Expert WOTI for oral health since 1994. First vice-president of CID-CDF (Premier vice président de la conférence internationale des Doyens des Facultés Dentaires d’expression Française). Member of the Middle East section of ICD Board, President of the National Commission for Oral Health for the Ministry of Public Health (M.P.H).

Prof. DOUMIT has lectured internationally.

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*The response of the audience is amazing, dentists are very friendly and excited to learn more about Laser Dentistry*

by Prof. Jihad Habib, Faculty of Medicine, University of Genoa, Italy

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