Large national gap identified
Private dental fees vary significantly throughout Britain, according to report

By DTI

DUBLIN, Ireland: Private fees for dental services have seen another 30 per cent increase in the last few months. A new survey conducted by Irish health care website WhatClinic.com has now found that patients in some parts of the UK have to pay up to twice as much for check-ups and other dental services than do patients in the rest of the country.

Among all areas surveyed, Milton Keynes stood out as the most expensive, with dental check-ups costing an average of £62 compared with only £31 charged by dentists in Birmingham, for example.

Other cities with high average fees in the same category were London (£53), Glasgow (£50) and Cardiff (£48). However, in Cambridge (£32), Manchester (£34) and Southampton (£35), patients pay the least for a dental check-up.

The nationwide average for a dental check-up is £46, according to WhatClinic.com. However, over 80 per cent of all of the cities and towns surveyed charge less than that, the results indicate.

Patients in some parts of the UK have to pay up to twice as much than do patients in the rest of the country.

The nationwide survey was conducted among 13,000 private dentists across Britain.

In addition to basic services like dental general check-ups, it compared average prices for four different speciality treatments, such as root canal therapy and implants.

For such treatments, patients in cities like London and Cambridge generally pay the most, while the rest of the country showed no distinguishable geographic pattern regarding the fees charged.

For example, root canal therapy costs the least north of the border in Glasgow and Edinburgh, as well as in Manchester and Belfast, where dentists also use to charge the least amount for implant treatment and tooth whitening procedures.

Fees for both of these treatments were also found to be at the lower end in Liverpool, Newcastle upon Tyne and Glasgow.

Cancer toolkit launched

By DTI

LONDON, UK: Cancer Research UK has launched a new oral cancer toolkit in partnership with the British Dental Association and the British Dental Health Foundation. It is aimed at helping dental professionals and general medical practitioners identify the disease earlier.

In addition to images of signs and symptoms of the condition, the free toolkit outlines how health professionals should refer patients for further testing. By completing the toolkit, professionals are eligible for continuing professional development credits, the organisations said.

Despite measures like Mouth Cancer Action Month, oral cancer in the UK continues to rise. New figures released by Cancer Research UK in November indicate that cases have almost doubled, with 7,300 people diagnosed in 2012 compared with 4,500 in 2002. Currently, up to 2,000 people die from the disease per year.

According to a 2015 study conducted by King’s College London researchers, insufficient knowledge and training among dentists was identified as a significant factor in lack of oral cancer awareness.
Professional footballers score low in oral health survey

By DTI

LONDON, UK: The previous season saw Premier League revenues soar to a new record of more than £3.5 billion. It seems that little of this money is spent on dental care, however, as a new study by researchers at UCL Eastman Dental Institute has revealed that many players throughout England’s three top-tier divisions present with various forms of oral disease.

According to the paper published in the latest edition of the British Journal of Sports Medicine, one-third of players who underwent oral health examinations were found to have dental decay and every second player exhibited signs of tooth wear. Periodontal disease was less prevalent, with one in 20 suffering from severe or moderate forms of the condition.

The study involved 184 players from the Premier League (including record champions Manchester United), as well as Championship and League One. The researchers examined the teeth and gingiva of 90 per cent of members of each senior squad and asked the players how they think oral disease affects their quality of life and overall performance. The majority of players surveyed regarded dental or gingival problems as having little influence on their overall performance on the pitch. One on five players, however, reported oral health-related pain has affected their quality of life.

“Oral health is an area where many athletes have greater problems than the general population so it has been a massive achievement for so many professional football clubs to collaborate with each other to help us understand the scale of this problem better,” commented West Ham United’s Head of Medical and Sports Science Stijn Vandenbergoucke, whose club participated in the study. “Being part of this study has also helped us as a club to implement tailored interventions to treat and prevent further problems.”

West Ham regularly conducts preventive interventions with a dentist in the off- and pre-season.

“We are pleased that clubs such as West Ham are already embracing the findings and building on their existing interventions by placing oral health care at the forefront of their medical agenda,” Dr Ian Needleman, Professor of Restorative Dentistry and Evidence-Informed Healthcare at UCL Eastman Dental Institute, said. “We hope that other teams follow their lead and introduce robust oral health screening and promotion as a routine element of their programmes.”

Paediatric dentistry expert scoops Scottish Health Award

By DTI

EDINBURGH, UK: Since its first publication in 1997, Paediatric Dentistry by Prof. Richard Welbury has become the standard textbook for all dentists working with children in the UK and Ireland. For this and other contributions to the field, the former paediatric dentistry professor from Glasgow received the first ever Scottish Health Award in the category ‘dentist’.

Welbury beat fellow nominees Drew Gibson of Bransden Dental Care and Roger Levie from Hamilton in Lanarkshire in the new category, which was announced this year. “I didn’t even know I had been nominated until I got the call saying I was a finalist,” he told the Daily Record newspaper.

Organised annually in partnership with NHS Scotland and the Scottish government, the Scottish Health Awards have been held since 2010. They recognise individuals in categories such as “innovation” and “healthier lifestyle”. Sixteen professionals were acknowledged with this year’s awards, which were celebrated at the Corn Exchange in Edinburgh on 4 November.

In addition to his achievements as an author, Welbury was recognised for his work on guidelines on protection of children against abuse. He recently retired from his position of Professor of Paediatric Dentistry at Glasgow Dental Hospital that he held since 2001. Prior to that, he worked as a regional consultant and senior clinical lecturer at Newcastle University, his alma mater.

Welbury has served as president of both the British Society of Paediatric Dentistry and the European Academy of Paediatric Dentistry.

In July, he chaired the 25th Congress of the International Association of Paediatric Dentistry, which was held in Glasgow.
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A new dental destination

Dental Tribune paid an exclusive visit to the new Curaden Dental Clinic in London

Clinic manager Patricia Adam.

A new dental destination on the high street can be seen in London, UK. Dental Tribune paid an exclusive visit to the new Curaden Dental Clinic in London.

MIND THE GAP

Clinic manager Patricia Adam.

“Dental care is a key part of the new clinic’s offering. It is to be established in the months following the clinic’s opening in October, during which time new patients have the first look at the new sleek and modern premises.”

The brainchild of Ueli Breitschmid, founder and CEO of Swiss preventative product specialist Curaden, and Zurich dentist Rolf Kufus, this practice branding concept involves not only a comprehensive product range, including toothpaste and brushes under the well-known CURAPROX brand, but also tailored teaching programmes developed to help dentists better communicate the importance of oral health prevention to patients.

“Professional advice, care and explanation of prophylaxis as well as more than just fluoridation. In the long run, the concept is intended to change the role of the dental practice, moving away from restoration and towards prevention, while ensuring the practice remains profitable.”

According to Patricia Adam, it took almost a year to bring the new clinic to fruition. “We certainly had to deal with a lot of regulations during the last few months, but we are happy that it all came together in the end,” she explained.

“Therfore, it is important that every member of the staff be able to explain the principles and products of our philosophy to the patient,” Adam emphasised.

The clinic offers the complete spectrum of dental treatment, ranging from check-ups to implant therapy. A separate whitening room is to be established in the months to come, although whitening procedures, according to Adam, are already part of the clinic’s extensive offering.

Located at 73 New Bond Street in London, the Curaden Dental Clinic is open Monday to Friday from 9:30 to 18:00 (except Thursdays, from 10:30 to 19:00) and on the first Saturday of the month. More information is available at newbondstreet@curaden.clinic or telephone (+44 20 7499 9806).
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“Consumers are pushing dentists toward metal-free implantology”

An interview with Dr Sammy Noumbissi, founder of the International Academy of Ceramic Implantology

A great deal of progress has been made in terms of materials, techniques and design of dental implants since the beginnings of modern implantology over 50 years ago. While titanium and titanium alloys have always been in use, the search for metal-free implantable materials began in the late 1960s and early 1970s, and during the last decade, zirconia has emerged as the most reliable implantable bioceramic. The International Academy of Ceramic Implantology (IAOCI) is an organization entirely dedicated to ceramic and metal-free alternatives to metal implants. It was founded in 2011 by Dr Sammy Noumbissi, with whom Dental Tribune had the opportunity to speak about the mission and vision of the IAOCI, as well as the state of ceramic implantology today.

Dental Tribune: Dr Noumbissi, could you please provide some background information on the development of ceramic implants?

Dr. Sammy Noumbissi: The use of dental implants to replace teeth has increased very rapidly in the last 15 or more years. With this increase in dental implant procedures, the number of manufacturers has increased too. Also, we have witnessed the introduction of various alloys of titanium over time.

Now, just like with any pharmaceutical or medical product, the increase in demand and changes in production methods come with problems and challenges. Although initially anecdotal, reports of titanium and titanium alloy intolerance have increased and are increasingly being investigated and demonstrated in the scientific dental literature. Based on the body of research available today, this intolerance of implant alloys can in great part be attributed to the release of metal ions in the host bone and surrounding tissue as a result of the breakdown and corrosion of metal alloys in the presence of body fluids and the oral environment in particular. Such facts have been established and widely recognized in orthopedics.

In the late 1960s, pioneers in ceramic implantology and notably Professor Sami Sandhaus began the search for modern non-metal implantable ceramic materials. However, many of the early ceramic implants were monocrystalline in their structure and could not survive the demands of the oral environment. Then came the use of polycrystals and in the early 2000s yttria-stabilized zirconia bioceramic emerged as the material of choice for metal-free implantation in dental implantology.

How did you become involved in research on ceramic dental implants?

My interest in ceramic implants came about in two ways. First, on a personal level, when I discovered that the metal fillings and implant I had in my own mouth were determined to be the source of some of the health problems I had experienced. Second, on a professional level, where a few of the patients to whom I had provided metal implants returned for check-ups or more implants, and upon reviewing their medical and dental history, it was also determined that the implants were at least in part responsible for the health problems they were experiencing. I then began to actively look for alternatives and at two decades had established themselves in both medicine and implant dentistry as the most bio-inert implantable material available. In 2011, two colleagues and I decided to create the IAOCI.

What is the primary aim of the IAOCI?

Associations and academies exist around various types of trades and industries. The common purpose of such groups is to organize and create a supportive environment for those involved in the respective area. The IAOCI was created with the same spirit, not only to organize metal-free implantology but also to provide the profession as a whole with quality and high-level continuing implant education on bioceramics as implantable materials. The IAOCI is also a resource for the public seeking practitioners who have experience with ceramic implants.

In your opinion, what are the dangers of metal implants?

Metal and most particularly titanium implants have been very successful. Their use has grown exponentially and with that manufacturers have multiplied, as well as manufacturing protocols. As a result, we have observed a steady increase in the alloy elements mixed with titanium during the manufacturing process. The problems begin when the metal implant highly alloyed or not, once placed is subjected to functional stresses, galvanism, body fluids and the harsh oral environment. The combination of mechanical, chemical and electrical events induces cracks and pitting of the metal, as well as ferrous in the oxide layer, and the implant undergoes corrosion attack. The corrosion attack, which is essentially an oxidation process, leads to the release of metal ions that studies have shown to be found in the surrounding bone, lymphatics, spleen, liver and in some cases crossing the blood-brain barrier.

What alternatives to metal dental implants are currently available on the market?

...reports of titanium and titanium alloy intolerance have increased and are increasingly being investigated and demonstrated in the scientific dental literature.”
Today, the well-researched and proven alternative material to metal for dental implants is zirconium dioxide, also known as zirconia. This is also a well-proven fact in medical orthopedic. Zirconia is the crystal phase of zirconium and as such it is not a metal. There are different manufacturing protocols for zirconia for dental implantation and they all lead to a variety of polycrystal bioceramics, such as zirconia-toughened alumina, hot isostatic-pressed zirconia and yttria-stabilized zirconia.

The common and most important properties of these bioceramics are inertness in the bone and oral environment, structural stability, absence of electrical activity, extremely low plaque retention and superior aesthetics.

Is the success rate of metal-free implants comparable with that of titanium implants?

In the early days, there were challenges. The materials were monocrystals with very highly polished and glassy surfaces, which made the early implants prone to fracture, poor attachment of bone-forming cells and low bone-implant contact. The manufacturing protocols, design, surface modification techniques and technologies of zirconia implants have evolved to a point where bone integration is ensured and comparable results are obtained.

Are ceramic alternatives the future of dental implantology?

Every industry projection one sees about implants signals good news for the future. Implants are now and will continue to be widely accepted by patients and the profession. Both groups agree that this is state-of-the-art treatment. However, owing to technology, the public is much more informed about health issues and therapies. We are in a similar situation today to that of fragrance: a few years back, in that consumers are pushing dentists toward metal-free implantology for the most part. In five years’ time, I believe that the number of ceramic implants being placed will double.

Bio-inert materials are the future of any type of implantable device. I believe bioceramics have taken hold and will be around for a long time because there has been a strong shift toward providing health care with the minimum risk and invasiveness over the last few years, as well as in a way that is more integrated, natural and biological. Furthermore, manufacturers have rapidly evolved and adapted the material and implant designs to clinical needs and demands. We now have a wide variety of implant designs, surface microtextures, components and prosthetic connections, making ceramic implants applicable to an extensive range of both replace- ment situations.

Dentists may have concerns about the reliability of ceramic implants. How does your organization address this?

Even within specialties, there is a need for organized groups because in today’s world research and application of discoveries are moving at lightning speed compared with 20 years ago. Therefore, once one has an environment in which much of the time and energy is spent tracking, learning and sharing innovative techniques and materials, members have a forum where they can obtain the information, training and skills to deliver the best of care to their patients in an evidence-based and organized manner.

As a matter of fact, our membership has doubled in the last two years and when prospective or new members are asked why they want to join or joined the academy, the most common response is that they are seeking a forum where they can obtain structured information and training.

Another frequent reason is that dentists have had patient challenges or inform them on the use and occasionally the existence of ceramic implants. Through technology and the ease of access to information, the public obtains information faster than we busy clinicians.

The AAO will be hosting its fifth Annual Winter Congress in Montego Bay, Jamaica. What can people expect from the event?

The theme in 2016 will be the last decade in ceramic implantology. We will have 14 speakers from seven different countries who will share their experiences with a variety of ceramic implant systems over the last ten years. One of our guest speakers has over 12 years of documented experience with zirconia implants. We will also have workshops on different implant systems, ceramic regenerative products, and revolutionary soft-tissue and hard-tissue-enhancing protocols proven to optimize implant integration and long-term stability.

Thank you very much for the interview.
Planmeca moves its UK base to Coventry

Global dental equipment manufacturer opens new head office inside Ricoh Arena

By DTI

COVENTRY & BIRMINGHAM, UK: For almost a decade, the Ricoh Arena has been unsuccessfully waiting for Premiership league football to return to Coventry. Besides being the home of one of Europe’s most progressive rugby teams, the complex was extended in recent years to host a number of different events including concerts and exhibitions. In October, a new attraction was added, as global dental equipment manufacturer Planmeca opened its new headquarters for the UK and Ireland inside the complex as part of a new marketing campaign to heighten awareness of its brand throughout markets in the British Isles.

With Planmeca’s Senior Vice President Tuomas Lokki from Finland attending as a special guest, the company’s representatives, partners and associates celebrated the opening together during the BDIA Dental Showcase.

“This is a new era for Planmeca UK and our new home is one of the most important foundations from which success can be built upon. This new facility offers the perfect environment to discover our range of dental solutions, world class CAD/CAM system and our experience of giving you creative digital dental solutions,” Lokki said.

According to Planmeca UK Managing Director Karl O’Higgins, to whom Dental Tribune had the opportunity to speak in Birmingham, the new facilities will offer improved logistics for distribution and training. A new customer experience centre will feature a dedicated CAD/CAM training zone alongside a full range of 3-D imaging machines showcasing the latest in the field.

The showroom will also include Planmeca’s range of digital dental units, which are all combined through the comprehensive and modular Romexis software. It can be quickly transformed into a small conference and event facility capable of hosting courses for up to 40 delegates, O’Higgins said.

“Planmeca hasn’t exploited its opportunities across the UK and Ireland for many years,” he commented on the opening. “With the new office we wanted to emulate our global headquarters in Helsinki but with a size that is appropriate to the market.”

“Planmeca will continue to provide innovation in the future. ‘There is definitely more to come,’ Laube promised.

In view of its transition into the Danaher group. He said that Nobel Biocare will continue to provide innovation in the future. “There is definitely more to come,” Laube promised.

By DTI

LONDON, UK: Celebrating the 50-year anniversary of the first successful osseointegrated implant ever placed in a patient, experts from all around the globe recently gathered in East London for the Nobel Biocare Team Conference. In addition to the achievements of the last decades, they discussed future concepts and prospects in the field of dental implantology.

Held in The Brewery, the former site of the Whitbread brewery, the event was the latest in a series of international expert symposia that Nobel Biocare has held in cities around the world this year, including Los Angeles, Hong Kong and Monaco. According to UK marketing manager for Nobel Biocare Glenn Rhodes, up to 400 professionals from the UK and abroad attended the symposium in London, which also saw an appearance by Nobel Biocare CEO Richard Laube who acknowledged the achievements of his company this year, particularly with the NobelParallel Conical Connection (ASC) and the Nobel Active Wide Platform (WP) implant systems.

“Being a part of such a big dental platform in the UK, we are already starting to see the benefits of that cross-working,” Rhodes added.

“There is a lot of potential here with new opportunities to deliver more solutions to more professionals, to help our customers treat more patients better and in turn improving the quality of life of more patients.”

US health conglomerate Danaher acquired the Swiss Implant specialist at the end of last year. Following the transition, Nobel Biocare introduced a number of new products in the UK market this year, including new complete posterior solutions for posterior restorations, as well as fantastic restorative possibilities in the aesthetic zone,” Rhodes said.

Attendees of the conference were able to experience and discuss these and the company’s other latest innovations, such as new additions to the wide-platform NobelActive and the All-on-4 treatment concept with zygomatic implants, in London.

The two-day event also offered a number of lectures, master classes and workshops on a wide range of topics, including peri-implantitis and immediate implant placement. Overall, the meeting gathered 26 leading speakers for the conference, according to Scientific co-chair Prof. Daniel van Steenberghe from Belgium, who also invited attendees to participate in the Foundation for Oral Rehabilitation, an independent international initiative, founded in 2013 and endowed by Nobel Biocare.

“Out of the conference were able to experience and discuss these and the company’s other latest innovations, such as new additions to the wide-platform NobelActive and the All-on-4 treatment concept with zygomatic implants, in London.”

The energy from the recent conference shows that the profession is really behind Nobel Biocare and the solutions we offer. With this and so much more to offer the profession, we will continue striving for excellence and look forward to what we will achieve in the future,” Rhodes concluded.

By DTI
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BDIA sees launch of new home whitening solution by Philips

By DTI

BIRMINGHAM, UK: Unlicensed tooth whitening is putting the health of an increasing numbers of patients in the UK at risk, according to reports. With its new Zoom! QuickPro home whitening solution, Philips intends to offer not only a safe alternative to these potentially harmful products but also one that makes tooth whitening easier and faster at the same time.

Introduced to the UK market for the first time today at the BDIA Dental Showcase in Birmingham, the solution saves valuable chair time by quickly sealing a 6% hydrogen peroxide whitening varnish on the teeth instead of using custom-made trays, thereby reducing leakage and irritation of soft tissue. After 30 minutes, the varnish can then simply be dry brushed or wiped off by the patient, according to Philips.

Company representatives told members of the press this morning that studies have shown that Philips Zoom! QuickPro 6% can whiten teeth by up to four shades in as little as four days.

Recommended especially for practices with limited space or staff to carry out whitening procedures, or that have previously not focused on home whitening, it can be used as a stand-alone product, after chairside treatment or to improve the results of previous whitening efforts.

"Many patients who used to buy over-the-counter whitening products still want to whiten with the convenience of a home-use kit. Philips Zoom! QuickPro provides an affordable but professional whitening solution with that convenience," commented tooth whitening expert Dr Zaki Kanaan. "For dentists who do not major on whitening procedures, Zoom QuickPro is simple to provide, requiring little professional time, and is profitable to the practice."

Zoom! QuickPro will be available to dentists throughout the UK as of now. In addition to the extension to the Philips Zoom! line of tooth whitening products, the company is introducing new variations and brush heads to its Sonicare electric toothbrush range.

3D White Whitestrips available to customers in Britain

By DTI

BIRMINGHAM & WEYBRIDGE, UK: Simultaneously to launches in eastern and western European countries, Oral-B has put its whitening solution 3D Whitestrips on the UK market. The product was officially introduced to dentists at the recent BDIA Dental Showcase in Birmingham and is exclusively distributed by health care products provider Henry Schein.

Requiring only one consultation by a dentist, the whitening process with 3D White Whitestrips can be entirely performed by patients at home. According to the manufacturer, the solution provides visible results that can last for up to 12 months after only 14 days of treatment.

Conforming to European legislation, Whitestrips are thin, flexible polyethylene strips coated with 5.25% hydrogen peroxide that adapt to the shape of the teeth and are easy to apply, the company said, providing consumers with a secure and effective solution to improve their appearance.

3D White is committed to pioneering new whitening technology and Whitestrips represents our most advanced whitening solution yet," remarked P&G Oral Care Global Marketing Director Stephen Spurier.

3D Whitestrips have been available to dentists in the US for over a decade. According to Oral-B, over 30 million kits have been sold since the product was first launched to the market 14 years ago. In addition to the UK, Germany, Spain and Portugal, the solution is expected to be introduced to more markets in Europe in a larger roll-out starting in 2017. In addition to Whitestrips, the 3D White product range consists of toothpaste, toothbrushes, floss and mouth rinses.

New interdental cleaning product from TePe an “easy” pick

By DTI

BIRMINGHAM, UK: TePe’s wide assortment of interdental cleaning products has an option for everybody. For those patients who find it difficult to floss or who are new to interdental cleaning aids, the company has recently introduced a convenient solution with the EasyPick. The new device is now available in markets in the UK and Ireland.

Developed and manufactured in Sweden in close collaboration with dental experts, the EasyPick has a firm and pliable core coated with silicone, which not only feels comfortable on the gingivae but also cleans effectively, even in the posterior area, the company said.

According to TePe, this optimal balance between flexibility and stability is what makes it unique in comparison with other interdental devices available on the market.

“It is easy to use and so flexible you can even access molar sites. Good at cleaning out interdental spaces, very good grip handle,” adds Grantham dental hygienist Helen Raitt.

Dental patient Jane Bewick said of the interdental device: “Very easy to insert, even into the smallest gaps. They look good, are durable and easy to grip.”

Owing to its conical head, the EasyPick is suitable for the cleaning of medium or large interdental spaces. TePe also noted that it can be used as stand-alone or to complement other interdental cleaning devices. A free pocket case comes with each pack for use on the go.

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KaVo extends digital support

By DTI

AMERSHAM, UK: In order to help customers in their transition to digital dentistry, KaVo UK has announced that it has formed a specialist Imaging and Digital Solutions Team. Available since mid-October, it was set up to provide fast specialist on-site and remote imaging support to users throughout the UK.

The Imaging and Digital Solutions Team consists of three specialists in CBCT, dental implant planning software and computer-guided surgery, including Barry Chandler, who joined the company from the IDT Dental Group. IT experts David Balchin and Simon Da Fiooy will also work alongside KaVo’s current imaging specialist, Alberto Neves, to offer their expertise in the use of a digital workflow and its seamless integration into the practice, the company said, ensuring the correct products are selected and return on investment for customers is maximised.

Customers may contact the new team through the KaVo website or via e-mail at info@kavo.co.uk

Software of Excellence and Zesty partner

By DTI

LONDON, UK: Since 2013, patients in the UK have been able to find dental care providers and book appointments via the Zesty website. A new partnership with Britain’s largest practice software provider, Software of Excellence (SOE), is aimed at extending the service to a wider population.

According to Zesty CEO James Balmain, the strategic move will enable new patients across the UK to easily find and compare providers and book dentist appointments on their mobile devices. Zesty will work with SOE to allow patients to search for dentists and book their appointments at the best dental practices, all in less than 60 seconds. “Our aim is to make finding an available dentist appointment as easy as booking a flight, hotel or restaurant online,” Balmain explained.

SEO UK Managing Director Ben Flewett commented that his company decided to partner with Zesty, as it offers an exceptional solution that makes booking appointments in dental practices easy to do and confirm.

According to its own figures, over 50 per cent of dental practices in the UK use SOE’s EXACT practice management software. The company is part of Henry Schein, which acquired the software provider in a £29 million transaction in 2007.

From left to right: James Balmain and Ben Flewett.

Customers may contact the new team through the KaVo website or via e-mail at info@kavo.co.uk.
Bisphosphonates: A threat or an option?

Prof. Per Aspenberg, Sweden

Most dentists will be familiar with bisphosphonates mainly as a cause of osteonecrosis of the jaw (ONJ). ONJ is a complication of systemic treatment. In contrast, locally applied bisphosphonates have been proven efficacious for improving the fixation of dental implants. Theoretical reasoning, experimental data, and small clinical trials suggest that local application of bisphosphonates is safe and effective in periodontology and implant surgery.

Bisphosphonates have positive effects on many conditions in bone and few and rare side-effects. Their efficacy in osteoporosis is well known, and there is evidence for improved implant fixation in an increasing number of applications. In dentistry, however, bisphosphonates are often regarded negatively, owing to the small risk of ONJ.

ONJ is indeed a problem. However, there is no ethical and clinical evidence to suggest that the risk of ONJ can be avoided by local treatment. Local bisphosphonate treatment has shown beneficial effects without complications in randomised blinded clinical trials in periodontology and dental implant surgery. How can this be? Here is an explanation:

Bisphosphonates either bind to bone mineral or are quickly excreted. Normally, they do not enter cells and are therefore not toxic. Only osteoclasts can resorb bone, and when they do so, the dissolved bone material passes through the cell. Therefore, bisphosphonates can reach the intracellular space of osteoclasts. Once inside the osteoclast, they will inactivate the cell and thus reduce bone resorption.

When bone is infected, the bone surrounding the infection will be quickly resorbed. The infected bone will therefore become surrounded by richly vascularized soft tissue that demarcates the infected area. Thus, a good resorption capability is important for preventing the spread of bony infection. This protection mechanism can be impaired if resorption is reduced by any potent anti-resorptive, leading to the spread of infection and established osteomyelitis. In dentistry, this kind of osteomyelitis is called osteonecrosis. Thus, from a pathological perspective, ONJ is a somewhat misleading term. The already well known anti-osteoclastic effects of bisphosphonates are sufficient to explain ONJ without suppositions about other, less known, mechanisms. Moreover, the theory fits with the observation that non-bisphosphonate anti-resorptives are associated with ONJ too.

When implants are inserted into bone, numerous studies have shown that—especially in cancellous bone—bisphosphonates reduce the resorptive response to the trauma without impairing the bone formation response, therefore having a net anabolic effect. This explains why both local and systemic bisphosphonates have been shown to improve the early fixation of knee and hip replacements in randomised blinded clinical trials.

Because bisphosphonates bind strongly to bone, local treatment will stay local. Bisphosphonates applied to a bone surface will stay one millimetre away from the implant surface would contain the bisphosphonate and could be re-covered if necessary.

In a randomised blinded controlled trial of dental implants coated with a protein layer loaded with bisphosphonates, improved fixation was demonstrated. The resonance frequency was 6.9 kHz units higher for the coated implants compared with the controls ($p = 0.001$; Cohen’s $d = 1.3$). Radiographs showed less marginal resorption both at two months ($p = 0.002$) and at six months ($p = 0.012$). The patients were followed for five years without complications.

To conclude, systemic anti-resorptives may impair protection against osteomyelitis, thereby increasing the risk of ONJ in patients with other risk factors. Local bisphosphonates seem not to confer this risk, and improve implant fixation by their net anabolic effect. Local bisphosphonate treatment could become an important tool in dentistry and maxillofacial surgery.

Editorial note: A list of references is available from the publisher.

Conflict of interest declaration: The author has shares in AddBIO.

Dr Per Aspenberg is Professor of Orthopaedic Surgery at Linköping University in Sweden with two decades of experience in research and clinical trials on the use of bisphosphonates to treat orthopaedic conditions. He can be contacted at per.aspenberg@liu.se.
“Tongue sanitisation is often inconvenient”

An interview with Matthias Georgi, developer of the TS1 Tongue Sanitizer

Visitors to the BDIA Dental Showcase were among the first dental professionals to try out the TS1 Tongue Sanitizer before its official market launch in the UK. Dental Tribune had the opportunity to speak with developer and company director Matthias Georgi in Birmingham at the show about the product and how it can improve an often neglected clinical problem.

Dental Tribune: Could you describe, in short, the functionality of the product?
Matthias Georgi: The TS1 was developed for use in professional care and exclusively for use in dental practices. It is simply attached to the saliva ejector of the suction unit. It is important to note that the cap at the end of the saliva ejector has to be removable in order to be compatible with the TS1s. The backside of the TS1 with knobs and a depression in the middle allows for easy application and rubbing in of the tongue gel, which is already widely used at dental practices. With this process, the biofilm on the tongue is broken up and the gel is evenly distributed over the tongue. Next, the TS1 is turned over to suction the residue and remove it permanently via gentle serpentine movement of the lamellae side. Since the biofilm is removed mechanically, the device is very effective even without the tongue gel. Owing to its flavour, however, the gel intensifies the feeling of freshness for the patient.

What are the short- and long-term advantages of the system?
Owing to the gag reflex, among other things, tongue sanitisation using common techniques and materials is often inconvenient for both the hygienist and the patient. With the TS1, the result of the tongue sanitisation is immediately visible. Its design, incorporating soft synthetic elements, allows gentle, pressure-free, mild cleaning of the tongue without irritating or traumatizing the papillae on the surface. The direct advantage of using the TS1 is that, compared with common methods of cleaning, like using a polishing brush and a tongue scraper, the device removes most of the contamination before finishing the cleaning process. Similar to toothbrushing during and after professional tooth cleaning, it is important that the patient continue the tongue cleaning at home for a long-term effect. For this, a toothbrush and basic tongue scraper will suffice.

Is there any research that confirms the effectiveness of the TS1?
Similar to tooth cleaning, the medical relevance of tongue cleaning has been the subject of debate, without any concrete results. Hence, we are currently working with key opinion leaders on studies that will compare our device and tongue scrapers in terms of acceptance and efficacy. Furthermore, we conducted wide-scale user tests during development with a group of German hygienists, who are still supporting and advising us in this process. In the UK, we recently started initial tests involving local hygienists, for which we have gained support from the British Society of Dental Hygiene and Therapy. Practical relevance is very important to us.

When will the device be available in Britain and is it available for testing?
The official launch is planned for Britain and as preparation for the market launch. Since we introduced the TS1 in Germany last month, feedback on the device has been overwhelming.

Thank you very much for the interview.
# London's Top 10 Attractions

1. **British Museum**
   - The world-famous British Museum exhibits the works of man from prehistoric to modern times, from around the world. Highlights include the Rosetta Stone, the Parthenon sculptures and the mummies in the Ancient Egypt collection. Entry is free but special exhibitions require tickets.

2. **National Gallery**
   - The crowning glory of Trafalgar Square, London's National Gallery is a vast space filled with Western European paintings from the 13th to the 19th centuries. In this iconic art gallery you can find works by masters such as Van Gogh, da Vinci, Botticelli, Constable, Renoir, Titian and Stubbs. Entry is free but special exhibitions require tickets.

3. **Natural History Museum**
   - As well as the permanent (and permanently fascinating!) dinosaur exhibition, the Natural History Museum boasts a collection of the biggest, tallest and rarest animals in the world. See a life-sized blue whale, a 40-million-year-old spider, and the beautiful Central Hall. Entry is free but special exhibitions require tickets.

4. **Tate Modern**
   - Sitting grandly on the banks of the Thames is Tate Modern, Britain's national museum of modern and contemporary art. Its unique shape is due to it previously being a power station. The gallery's restaurants offer fabulous views across the city. Entry is free but special exhibitions require tickets.

5. **The London Eye**
   - The London Eye is a major feature of London's skyline. It boasts some of London's best views from its 32 capsules, each weighing 10 tonnes and holding up to 25 people. Climb aboard for a breathtaking experience, with an unforgettable perspective of more than 55 of London's most famous landmarks – all in just 30 minutes!

6. **Science Museum**
   - From the future of space travel to asking that difficult question: “Who am I?”, the Science Museum makes your brain perform Olympic-standard mental gymnastics. See, touch and experience the major scientific advances of the last 300 years; and don’t forget the awesome IMAX cinema. Entry is free but some exhibitions require tickets.

7. **Victoria & Albert Museum**
   - The V&A celebrates art and design with 3,000 years' worth of amazing artefacts from around the world. A real treasure trove of goodies, you never know what you’ll discover next: furniture, paintings, sculpture, metal work and textiles; the list goes on and on… Entry is free but special exhibitions require you to purchase tickets.

8. **Tower of London**
   - Take a tour with one of the Yeoman Warders around the Tower of London, one of the world’s most famous buildings. Discover its 900-year history as a royal palace, prison and place of execution, arsenal, jewel house and zoo! Gaze up at the White Tower, tiptoe through a medieval king’s bedchamber and marvel at the Crown Jewels.

9. **Royal Museums Greenwich**
   - Visit the National Maritime Museum - the world’s largest maritime museum, see the historic Queen’s House, stand astride the Prime Meridian at Royal Observatory Greenwich and explore the famous Cutty Sark: all part of the Royal Museums Greenwich. Some are free to enter; some charges apply.

10. **Madame Tussauds**
    - At Madame Tussauds, you’ll come face-to-face with some of the world’s most famous faces. From Shakespeare to Lady Gaga you’ll meet influential figures from showbiz, sport, politics and even royalty. Strike a pose with Usain Bolt, get close to One Direction or receive a once-in-a-lifetime audience with Her Majesty the Queen.
Recently, I read in a highly regarded dental publication of the dentist drilling, treating and providing aid out in the middle of the desert, just next to the off-road vehicle, with the nearest hospital probably hundreds of kilometres away.

Men love adventures. Full of excitement, we enjoy watching others survive life-threatening adventures in the jeep of that well-known cigarette brand, bearing the humped animal on its packaging. Owing to mobile medical technology, treatment at a good level can even be provided in such contexts.

I recently needed something similar. A long-term patient (glioblastoma, radiotherapy, palliative care, mucositis) presented with a pressure sore and requested a home visit, since he was not able to walk. This posed no problems for me, since our joint practice has looked after patients in two old age homes for years. In the homes, there are infirmaries where the mostly bedridden patients receive special care. Our agreement with management is that we see the patient at the respective home if any dental problems arise. If we determine that more complex diagnostic and therapeutic measures are necessary, the patient is brought to our practice by ambulance. Often, seniors are already edentulous, and sometimes only the usual problems with tooth #28 occur.

In these situations, a useful mobile device we employ is the cordless Bravo Portable II (Hager & Werken), a small and portable micro-motor. Similar to mobile phones, it is remarkable how the dimensions of batteries have decreased while their running time has increased. The Bravo Portable II provides mobility in every situation.

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Portable micro-motor: Adventurous and unrestricted?

By Dr Hans H. Sellmann, Germany

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In these situations, a useful mobile device we employ is the cordless Bravo Portable II (Hager & Werken), a small and portable micro-motor. Similar to mobile phones, it is remarkable how the dimensions of batteries have decreased while their running time has increased. Inside the Bravo Portable II, a nickel–metal hydride battery with a voltage of 15 V provides a running time of 8 hours. With this, you can make all of the old age home residents fit and happy again without having to recharge once.

The device can be recharged more than 500 times, yielding a service life of many years. Twenty years ago, I bought the predecessor of the Portable II and it was only recently that I had to replace it with the newer model.

The manufacturer provides a comprehensive instruction manual with its motor, which is compatible with any standard handpiece. The manual states that the Portable II needs to be charged with the charging unit for only 6 hours to be fully charged. Of course, the motor runs as well counter-clockwise as clockwise. Rotations can be preselected from 1,600 to 25,000 with a standard contra-angle handpiece (blue ring). Owing to its low weight of 300 g and a clip to attach it to a belt, the device can be carried everywhere.

Face every treatment situation with confidence, whether it be a home visit, in an old age home, at a correctional facility or even in the wilderness.

The elderly patients at the nursing home will thank you for being able to resolve their pressure spots on-site instead of taking their prostheses to your practice. Just make sure that you always keep your Bravo Portable in sight, and if it goes missing, have a look in your son’s workshop. The small portable micro-motor is also suitable for filigreed craft-work, so it is popular with non-dentists too.

Available since April

The Bravo Marathon Portable III features a number of improvements. It is more powerful and has a higher torque. Equipped with a state-of-the-art battery, it offers an infinitely variable 4,000 to 35,000 rpm. Running time extends to 12 hours with the battery only requiring 5 hours to be fully charged.

“...it is remarkable how the dimensions of batteries have decreased while their running time has increased.”

The Bravo Portable II is available at selected dental laboratories and dental practices.
Dr Julian Webber explains why shaping canals with confidence is now a clinical reality for all.

The mechanical and biological objectives of shaping root canals were beautifully described by Herbert Schröder in 1974. As relevant today, in the era of automated canal preparation techniques, these objectives provide the rationale for the designs, tapers and tip sizes of modern-day endodontic instruments.

Shaping the root canal facilitates filling the root canal system. Importantly, shaping the root canal provides the resistance form and facilitates filling the root canal system.

From hand to rotary

When manually shaping canals, root canal preparation techniques, old and new, have many deficiencies and iatrogenic problems, such as blocking, lodging, transportation and perforation, are common. The use of nickel-titanium (NiTi) files in continuous rotation driven by a dedicated endodontic motor capable of speed and torque control maintains the original pathway of the canal while limiting the amount of apically extruded debris. However, while the advantages of continuously rotating NiTi files are many, all commercially available file systems are influenced by cyclic fatigue and torque, especially in longer, narrower and more curved canals.

Cyclic fatigue, caused by the structural alteration and work hardening of the metal, is induced by repeated tensile-compressive stress, especially when preparing canals exhibiting curvature. Torsional failure caused by using too much apical force occurs more frequently than flexural fatigue. Specifically, taper lock results when an excessive length of a file’s active portion binds in the canal during rotation. Undesirable taper lock promotes torsional failure and file breakage. When the canal diameter is narrower than the diameter of the rotating file, the latter has limited ability to progress deeper into the canal, binds and then potentially unwinds and/or breaks.

From rotary to reciprocation

While the majority of commercially available NiTi systems are mechanically driven in continuous rotation, reciprocation—defined as any repetitive up and down or forward and reverse movement—has been used to drive endodontic instruments since 1958. Early attempts at reciprocation utilized alternating, but equal and opposite movements with a full forward rotation of 360 degrees after four 90-degree cutting cycles of reciprocation, just or more recently, smaller angles of 30 degrees. As such none of these instruments ever complete a full rotation. Although these reciprocating systems offer an alternative to manual preparation, multiple-file sequences, apical transportation, reduced cutting efficiency, inward pressure and limited debris removal remain issues. However, with a novel reciprocating movement of unequal bidirectional angles that complete a full forward rotation of 360 degrees after four 90-degree cutting cycles of reciprocation, just...
one single file can start and fully complete the preparation of a canal to perfect shape. A single- file technique in conjunction with a novel reciprocating movement has been shown to reduce both cyclic fatigue and torsional failure, prevention broken instruments.18 In 2008, the concept of the “single file technique” was adopted by DENTSPLY International as a project in collaboration with eight international clinicians to produce a more optimal, dedicated, safe, unique reciprocating single file and to identify the most suitable unequal bidirectional instruments with a motor system to generate this movement. The outcome was the launch of RECIPROC (DMG) in 2010 and WaveOne (DENTSPLY Maillefer) in 2011. Both systems were marketed as simple, efficient and predictable automated methods to shape canals and embraced by many general dental practitioners looking to move into automated canal shaping after years of unsuccessful attempts with manual techniques and valued both in terms of time and cost savings.

WaveOne and RECIPROC file systems (reciprocating files) demonstrate considerably improved mechanical properties, superior to rotary files. While the cyclic fatigue properties of RECIPROC are superior to WaveOne, the resistance to torsional failure of WaveOne is superior to RECIPROC.19 Overall, reciprocating files are more resistant to fracture than conventional rotary files, and the risk of longitudinal fracture is, therefore, reduced.20 The ability of reciprocating files to maintain the shape of the canal throughout the entire working length is a unique advantage over conventional rotary files.21

Advanced metallurgy

WaveOne GOLD instruments are manufactured utilizing a new DENTSPLY proprietary thermal process, producing a super-elastic NiTi file. The gold process is a post-manufacturing technology in which the ground NiTi files are heat-treated and slowly cooled. From a technical perspective, the heat treatment modifies the transformation temperatures (austenitic start and austenitic finish), and this has a positive effect on the instrument properties.22 While this process gives the file its distinctive gold finish, more importantly, it considerably improves the strength and flexibility far in excess of its predecessors. DENTSPLY internal testing has shown the following: the cyclic fatigue resistance of WaveOne GOLD Primary is 15 per cent greater than that of WaveOne Primary (which itself was twice as great as most standard rotary file systems), and the flexibility of WaveOne GOLD is 23 per cent higher than that of WaveOne Primary.23

Design features

There are four tip sizes in the WaveOne GOLD single file reciprocating system: Small (20.07, yellow), Primary (25.07, red), Medium (35.06, green) and Large (45.05, white) (Fig. 9). Available in 21, 25 and 31 mm lengths. The various tip sizes and tapers afford the clinician the ability to clinically prepare a wider range of apical diameters and endodontic anatomy commonly encountered in daily practice.24 Canal preparations that have sufficiently tapered exchange form are ideal for irrigant exchange and removal of debris, thus promoting 3-D disinfection and filling of the root canal system. WaveOne GOLD has active cutting lengths of 26 mm, shortened 1 mm handles for improved posterior access and the same expanding ISO coded 08S angular file, maintaining the philosophy of single use. Variable and reducing tapers ensure a more conservatively shaped canal with greater preservation of tooth structure, the coronal extent of the preparation (Fig. 10). While the concepts of “minimally invasive endodontics” lack documented and meaningful studies, any shaping objective that removes less of the existing tooth structure while optimising efficient irrigation and obturation is a positive step in an effort to preserve the integrity of the natural tooth.

The cross-section of WaveOne GOLD is a parallelogram with two 83-degree cutting edges in contact with the canal wall, alternating with a patented DENTSPLY off centred cross-section where only one cutting edge is in contact with the canal wall (Fig. 11). Decreasing the contact area between the file and the canal wall reduces binding (taper lock) and, in conjunction with a constant helical angle of 24 degrees along the active length of the instrument, ensures little or no screwing in. The additional space around the instrument also ensures additional space for improved debris removal. The tip of WaveOne GOLD files is blunted and semi-active, modified to reduce the mass of the centre of the tip and improve its penetration into any secured canal with a confirmed, smooth and reproducible glide path.

Collectively, these design features result in a reciprocating movement that is very smooth, eliminating the need to push on the file and thereby promoting safety and considerably improving cutting efficiency. This
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Reciprocating movement

WaveOne GOLD files are designed with a reverse cutting helix, engage and cut dentine in a 190-degree counter-clockwise (CCW) direction and then, before the instrument has a chance to taper lock, disengages 30 degrees in a clockwise (CW) direction. The net file movement is a cutting cycle of 120 degrees and therefore after three cycles the file will have made a reverse rotation of 360 degrees (Fig. 4).

The X-Smart IQ (Fig. 5) launched in conjunction with WaveOne GOLD is an endodontic motor and cordless 1 handpiece designed for reciprocation and continuous motion. The handpiece is Bluetooth controlled by a DENTSPLY iO/iQ app downloaded on to an iPad mini 2/Apple. As a complete digital solution, it is designed for all stages of the endodontic procedure, including patient management, file selection, torque control training and patient education. The X-Smart IQ also offers electronic apex locator functionality. Currently available DENTSPLY reciprocating file motors and their respective handpieces, the X-Smart Plus Motor (Best of the World) and ProMark andry Torque Control motors (North America), can be used without modification when using the complete range of WaveOne GOLD files. All reciprocating file motors are preprogrammed to produce the reverse bidirectional movement, but the CCW/CW angles, torque and speed settings cannot be altered. These motors can, of course, be used for continuous rotation when the clinician is able to adjust the speed and torque, as desired.

Shaping technique (Fig. 6)

The WaveOne GOLD Primary (025.07) is always used first to initiate the shaping procedure. It will create optimal shape in approximately 80 per cent of canals as a true single file technique and is used in canals that have a confirmed, smooth and reproducible glide path. An expanded glide path is a perfect set-up for the safe apical progression of any mechanically driven endodontic file.

The WaveOne GOLD Small (020.07) file should be thought of as a bridge file, as the resulting shape is considered too small to allow disinfection and filling of the root canal system. When the Primary file will not passively advance through the glide path, which has been verified to length, the small file is used to transition and expand the shape. The Primary file is then used to mach the full working length. Although a two-file sequence is the exception, this method must be considered a safer and more efficient option compared with most other commercially available rotary shaping techniques.

After the Primary file reaches length, the flutes are inspected and if full of debris would indicate shaping is finished. If the Primary file is loose at length with no dentinal debris on the apical flutes, shaping continues with WaveOne GOLD Medium and/or WaveOne GOLD Large until the apical flutes are loaded. Apical gauging with ISO #40 or 35 hand files, respectively, will also confirm whether the apical foramen diameter is larger and that a Medium or Large file is required.

WaveOne GOLD files are used in a brushing action to reduce resistance and more effectively instrument canals that exhibit irregular cross-sections. Brushing eliminates coronal interferences, creates lateral space, and promotes the inward advancement of the file. Further, a brushing action reduces the contact between the file and dentine, mitigates undesirable taper lock and allows the instrument to run more freely. In order to avoid transportation, never brush at length. The file is used with a gentle inward ‘strocking’ motion of short to 3 mm amplitude to passively advance the file along a smooth, reproducible glide path.

Reduced shaping time with WaveOne GOLD means there is more time available to focus on active irrigation methods. In order to enhance irrigation and improve effectiveness activation with sonic and ultrasonic irrigation is now well accepted. Dynamic irrigation in the apical one-third of highly curved canals has been shown to significantly improve disinfection.

The stages of the shaping procedure can be summarised as follows (Fig. 7-9):

- Establish straight line coronal and radicular access with emphasis on flaring, flattening and finishing the internal axial walls.
- In the presence of a viscous chelator, use a #10 hand file to verify a glide path to length. In more restrictive canals, use a #10 hand file in any region of the canal to create a glide path.
- Expand this glide path to at least 0.15 mm using either a manual or a dedicated mechanical file, such as the ProFile or Pathfile (DENTSPLY) (Fig. 7).
- Initiate the shaping procedure with the Primary file in the presence of sodium hypochlorite (Fig. 8).
- Use gentle inward pressure and let the Primary file passively progress through any region of the canal that has a confirmed glide path. After shaping 2 to 3 mm of any given canal, remove and clean the Primary file, irrigate, recapitulate with a #10 hand file and re-irrigate.
- Continue with the Primary file, in two to three passes, to pre-enlarge the coronal two-thirds of the canal. In more restrictive canals, use a #10 hand file in the presence of a viscous chelator and negotiate to the termination of the canal. Gently work the file until it is completely loose at length.
- Establish working length, confirm patency and verify the glide path.

Obturation solutions

Obturation of the root canal system is the final stage of the endodontic procedure. The WaveOne GOLD system includes matching paper points, gutta-percha points and Thermafil obturators (Fig. 10). The new nanotechnology engineered gutta-percha points with their extended heat flow are ideal for all warm vertical compaction (WVC) techniques (Figs. 13a–c, 14a–c & 15a–c). WaveOne GOLD shapes can also be effectively obturated with Gutta-Core (DENTSPLY), the cross-linked gutta-percha core obturator.

Conclusion

WaveOne GOLD is a safe, efficient and simple system for preparing canals. Sophisticated metallurgy and design result in improved flexibility and cyclic fatigue life with less binding and torsional stress on the file during work. The fear of instrument breakage should be eliminated for many clinicians by using WaveOne GOLD. Root canal preparation with WaveOne GOLD is very cost-effective, since 80 per cent of cases can be completed with the single Primary instrument. Single use eliminates the need to spend valuable time and unnecessary expense in sterilising procedures, with further benefits in cost savings. Faster preparation time allows the clinician to focus on the most important aspect of clinical endodontics, disinfection, thus fulfilling the mechanical and biological objectives of shaping canals.

WaveOne GOLD has set a new standard and shaping canals with confidence is now a clinical reality for all.

* If the Primary file is loose at length with no dentinal debris on the apical flutes, continue shaping with the Medium or Large file.

Editorial note: The author has a commercial interest in WaveOne and WaveOne GOLD file systems. A list of references is available from the publisher.
“Greater power in the focus area”

An interview with Patric Charest, Orascoptic

Back in January, dental loupes manufacturer Orascoptic introduced its adjustable magnification loupes EyeZoom to dental professionals in the UK. At the recent BDIA Dental Showcase in Birmingham, Dental Tribune had the opportunity to speak with International Sales Manager Patric Charest, USA, about the device and the benefits it offers compared with conventional loupes.

Dental Tribune: Mr Charest, EyeZoom promises significant advantages over conventional loupes. What features make it stand out from the competition?

Patric Charest: With conventional loupes, the field of view is usually very small. There are clinical procedures, however, for which the operator would like to have greater magnification without sacrificing on what he or she can see. This system allows the operator to do that. The EyeZoom is the only loupes that has two prisms inside and provides three to four times the magnification while working.

Ergonomics plays a part, since EyeZoom allows clinicians to see better while being able to move back and forth. Many clinicians work from the 12 to 9 o’clock position and they typically move closer when approaching the treatment area. They need a loupes that allows them to see the arch clearly and maintain good posture while moving between positions.

The device has been on the market for a couple of months. How has it been received by the market here?

Patric Charest: Like in the US, there are many clinicians who like to work with a wider field of view. It has been well received and our customers here are really enjoying it so far. If the operator wants to increase the power while performing endodontic treatment, he or she can literally twist the loupes and the field will not become narrower. This is the only loupes in the world that can do that. The operator gains greater power in the focus area, unlike with conventional loupes, which have to be taken off during the procedure.

In addition, most customers like that it is lightweight and comfortable. The frame weighs only 96 grams and was designed in Italy. It is perfectly balanced for a comfortable fit.

The price for conventional loupes ranges between £1,600 and £3,000. Where does the EyeZoom fall?

Patric Charest: Normally, the dentist pays more for a wider field of view from edge to edge. The EyeZoom is located at the higher end, but offers three magnifications in one instead of the dentist having to buy three separate loupes. Many clinicians find value in that.

Thank you very much for the interview.

As a company, we focus on high quality and want our loupes to be the best on the market. The quality of the EyeZoom is really exquisite; it has already received a number of awards. It has been a really successful product in both the US and the UK.

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The One Shape Procedure Pack
A unique solution for root canal shaping

Dr Tara Mc Mahon, Belgium

The objective of endodontic treatment is the elimination of pulp debris or the bacterial biofilm and its toxins from the root canal system in order to prevent or eliminate any periapical lesion. For this purpose, root canal shaping is an essential, necessary and complex step. Essential because it allows indispensable irrigation, necessary to achieve obturation of the endodontic root canal system and complex because of the infinite complexity of the root canal anatomy.

Over the past several years, the definition of an endodontically successful root canal treatment has changed considerably. In 1986, success was based on the complete disappearance of the periapical lesion. In 2004, the concept evolved and the terms “recovered tooth” (tooth on the way to recovery) and “diseased tooth” were used. In 2011, the terminology of “functional tooth” versus “non-functional tooth” was finally introduced. Despite this, the concepts for root canal shaping established by Schäfer in 1974 remain unchanged, namely with respect to the initial root canal anatomy and position of the apical foramen, as well as conservation of root canal patency and attainment of a sufficient taper to guarantee the penetration of the irrigating solutions to the apex.

Practitioners are familiar with these concepts and try to implement them in the best possible way. However, endodontic treatment remains an area that poses great difficulties for dental surgeons, and time constraints can often lead to inadequate treatments. Thus, general practitioners desire a simple, efficient and rapid solution that allows reproducible treatments. The introduction of rotary nickel-titanium (NiTi) instruments in endodontics in the late 1990s has revolutionised the discipline. The material’s extreme elasticity imparts great flexibility to instruments with greater diameters and tapers than those of hand files. Stainless-steel hand files are more rigid and can lead to the creation of an apical ledge, canal transportation, a crack in the apical foramen or even instrument fracture.

Although NiTi instruments allow reliable and reproducible results, they present a higher risk of fracture than do stainless-steel files, particularly those used in continuous rotation, which is due to cyclic fatigue or higher torsional stress. Instrument fractures caused by cyclic fatigue occur without prior deformation visible to the naked eye. They are therefore impossible to foresee with certainty.

Too often does this elevated risk of instrument fracture result in general practitioners abandoning endodontics altogether. However, respecting several simple principles, such as using the speed and torque recommended by the instrument manufacturer, pre-enlarging the root canal, using vertical up-and-down movements, as well as cleaning and performing visual control of the instrument after each passage, makes the practitioner’s work less stressful and more relaxed.

The introduction of single-use instruments not only eliminates the risk of cross-contamination, but also considerably reduces the risk of instrument fracture due to cyclic fatigue and simplifies the operating procedure. MICRO-MEGA has designed the One Shape Procedure Pack, which contains an ENDOLFLARE file, a #10 MMC file, a #15 MMC file and a One Shape file. It simplifies the operating procedure, removes the need for instrument maintenance and makes stock management easier. All of the necessary instruments for the endodontic treatment are single-use files supplied in sterile packaging.

Operating procedure
Each endodontic treatment requires a preoperative radiograph taken with a radiograph film holder (Fig. 1). Once a dental dam has been placed and the access cavity has been prepared, the root canal entrances are localised and the pulp chamber is irrigated with sodium hypochlorite (Fig. 2).

The first step of the root canal preparation is the enlargement of the canal entrances. As the first instrument in the One Shape Procedure Pack, ENDOLFLARE (with a diameter of 0.25 and a 0.12 taper) is used with up-and-down movements and pressure on the canal walls in the first 1–4 mm of the root canal to enlarge the canal orifices. In this case, ENDOLFLARE eliminates the dentinal overhang at the entrance to the distal root canal (Fig. 4) and lays open the second mesiobuccal canal (Fig. 5).
The exploration file (fits MMC) serves to evaluate the root canal's complexity. It is introduced into the root canal without axial constraints in the coronal zone, owing to the previous action of ENDO-FLARE. Any coronal interference that might hinder the file’s passage must be eliminated to make the treatment as safe as possible (Fig. 6).

The second step of the root canal preparation is the exploration of the root canal and the creation of a glide path. This step entails the pre-enlargement of the root canal and facilitates the passage of the following rotary shaping instrument. Root canal exploration and glide path development are performed with stainless-steel hand files or rotary NiTi files. It has been shown that the use of a highly flexible instrument with an asymmetrical cross-section reduces the risk of canal transportation. In addition, this kind of cross-section combined with a variable helical pitch diminishes screwing effects.

The second rotary instrument in the One Shape Procedure Pack is One G (Fig. 7). This NiTi instrument with a diameter of 0.14 and a 0.05 taper has an asymmetrical cross-section. Its three cutting edges are situated on three different radii to the root canal axis. One G also has a variable helical pitch and thus variable helical angles. The narrower the angle, the more active the rotating instrument, and the wider the angle, the greater the efficiency of the instrument’s traction. All of these features provide One G with a high flexibility and great efficiency.

Clinically, if the root canal is patent, One G is taken to the working length (WL) previously determined with the #10 MMC file and an apex locator. However, if the root canal is not patent, One G penetrates with vertical up-and-down movements on the canal axis down to the WL at a speed of 250–400 rpm and a maximum torque of 1.2 Ncm. Root canal shaping is performed in three steps with progression of One Shape to two-thirds of the WL, 3 mm short of the WL, and the WL (Fig. 11). Between each passage, the root canal is abundantly irrigated with sodium hypochlorite and patency is checked with a #15 file. The instrument’s spires must be systematically cleaned and visually inspected.

One Shape performs the root canal preparation quicker than other single-file systems. This gain in time must be used for the indispensable final irrigation.

The instrument progresses with an up-and-down movement of low amplitude and without excessive pressure. One Shape is used in continuous rotation with a speed of 350–450 rpm and a maximum torque of 2.5 Ncm. Root canal shaping is performed in three steps with progression of One Shape to two-thirds of the WL, 3 mm short of the WL, and the WL (Fig. 11). Between each passage, the root canal is abundantly irrigated with sodium hypochlorite and patency is checked with a #15 file. The instrument’s spires must be systematically cleaned and visually inspected.
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