By DTI

SINGAPORE: A record number of 8,173 visitors from 72 countries attended this year’s International Dental Exhibition and Meeting (IDEM) in Singapore, organiser Koelnmesse reported last week. The figures are a slight increase from the last show in 2014, which saw 7,800 visitors attending.

With 512 dental manufacturers and dealers, there were also more participants in the trade exhibition this time, including a new national pavilion organised by the Brazilian Medical Devices Manufacturers Association (ABIMO).

“Being geographically further away from the Asia-Pacific region, it is important for us to update our new technologies and the needs of the industry, as we see Singapore as a key target for the dental industry,” Laísa França, ABIMO Trade Promotion Coordinator, said. “We hope to be able to participate in the next edition of IDEM Singapore in 2018.”

The show saw a number of world-première product launches by leading dental suppliers that included new implant systems, dental disinfection lines and digital practice management solutions. Many of these products were available to dentists in the Asia-Pacific region for the first time. For the second time, IDEM was held over three floors of the Suntec Singapore Convention and Exhibition Centre from 8 to 10 April. Owing to the rise in industry participants, the exhibition space was extended to 18,000 m² this year. The scientific programme brought back regulars, like the New Dentist Forum, but also featured new educational formats, such as the Digital Dentistry Forum, aimed at advising attendees on ways to integrate digital dentistry and the benefits of CAD/CAM, 3-D printing and CBCT scans, among others.

“The IDEM Singapore 2016 show statistics proved once again that we are Asia Pacific’s most anticipated event on the dental calendar, providing all visitors with knowledge and insights into the industry. We will strive to continue to be the preferred platform for the dental industry to grow in this region,” said Michael Dreyer, Koelnmesse vice president for Asia Pacific.

IDEM Singapore more than meets expectations

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“IDEM Singapore 2016 was a very successful event for the industry, as well for the Singapore Dental Association (SDA),” commented SDA President Dr Kuan Chee Keong. “We encourage professionalism and continuous learning through events such as IDEM Singapore. Through our partnership and efforts, we hope to encourage more participation from industry leaders in Asia and worldwide.”

For IDEM 2018, Koelnmesse is already in talks with the International Academy of Periodontology regarding a forum focusing on periodontology. Further collaboration with specialist organisations is under consideration. The next edition will be held from 13 to 15 April, again at Suntec. It will be the tenth time that the show is held in Singapore. Moreover, it will mark 20 years of collaboration between Koelnmesse and the SDA.
Henry Schein gains interest in J. Morita subsidiary

By DTI

KYOTO, Japan/MEVILLE, USA: Henry Schein announced that it has entered into a definitive transaction to acquire a 50 per cent interest in the One Piece Corporation, a subsidiary of J. Morita, one of the world’s largest manufacturers and distributors of dental equipment and supplies.

One Piece is composed of eight novels, which were published in Japan between 1997 and 2009. The series has since been adapted into a manga and an anime. The company is known for its popular characters and stories, which have captured the hearts of millions of readers worldwide.

The acquisition is expected to be completed by the end of 2021 and is subject to certain customary closing conditions. Henry Schein will provide updates on the progress of the transaction in its future earnings releases.

Sleep-disordered breathing often undiagnosed in Asians

By DTI

SINGAPORE: Aiming to determine the prevalence of sleep-disordered breathing (SDB) across different Asian ethnicities in Singapore, a new study has found that about one-third of the participants suffered from SDB. The study further established that over 90 per cent of the SDB group had never been diagnosed with or treated for the condition before.

In the study, SDB incidence was evaluated in 242 participants aged 21 to 79 with a home-based Embleta PIDS digital recording device (ResMed). Moderate-to-severe SDB, which was defined as an apnoea-hypopnoea index (AHI) score of ≥ 15 events/hour, was used to estimate prevalence.

The results showed that moderate-to-severe SDB and sleep apnoea syndrome were present in 30.5 per cent of the Chinese, 33.8 per cent of the Indian study participants and 31 per cent of the Chinese, 33.8 per cent of the Indian study participants. Of those with moderate-to-severe SDB and sleep apnoea syndrome were present in 30.5 per cent of the Chinese, 33.8 per cent of the Indian study participants, respectively. Of those with moderate-to-severe SDB and sleep apnoea syndrome were present in 30.5 per cent of the Chinese, 33.8 per cent of the Indian study participants, respectively.

The study concluded that SDB is an under-diagnosed and under-treated condition in Asians. The findings highlight the importance of screening for SDB in Asian populations to improve early detection and management of this prevalent disorder.
Planmeca ProModel technology part of first Nordic facial tissue transplant

By DTI

HELSEINKI, Finland: Finnish dental manufacturer Planmeca’s ProModel technology has supported the first facial tissue transplant procedure in the history of the Nordic countries. The service, which designs and creates patient-specific surgical guides and skull models from CBCT/CT images, helped surgeons to significantly reduce operating time for the demanding procedure, which was performed at Töölö Hospital in the Hospital District of Helsinki and Uusimaa (HUS).

In addition to a decrease in surgical time, the ProModel technology was able to produce significantly more precise results compared with conventional methods, the surgical team stated at a press conference. Dr Jyrki Törnwall explained: “Based on literature, we know that it can take 3 to 4 hours to trim bones. In this particular operation, it took Patrik [Lassus] and myself under 10 minutes to place the transplant. This led to a drastic reduction in the duration of the surgery, while also significantly improving the accuracy of bone placement.”

Using virtual surgery to simulate procedures is an increasingly important part of surgery today. “Surgeons and us engineers both see tremendous potential in this kind of collaboration,” said Jani Horelli, CAD/CAM Design Manager at Planmeca. “The field continues to advance at a fast rate and it is very interesting to witness this evolution first hand. I am proud to be part of a highly skilled Finnish community of specialists. It feels meaningful to partake in improving the lives of people, who have encountered serious illnesses and disabilities.”

Planmeca’s collaboration with HUS spans nearly a decade. “Planmeca’s role has been essential to our work for years—we have been able to utilise computer simulations to create saw guides, which allow us to saw at a specific orientation and to an exact depth, as well as remove facial structures, which we know match the donor, at a precise angle,” said Törnwall, acknowledging the benefits of the company’s 3-D services.

Both HUS and Planmeca began planning for the operation already years before the surgery was carried out and this consisted of modelling donor tissue and determining how it matched the recipient, as well as simulating the operation together with the surgeons in advance. Following this, the components were designed and manufactured at Planmeca’s headquarters and transported to the hospital, where they were taken directly to the operating room.

The extremely rare procedure, which was only the 35th of its kind in the world, entailed transplanting the patient’s upper and lower jaws, lips and nose, as well as segments of the skin, midfacial and tongue muscles, and the nerves of these muscles. The surgery itself took 21 hours and included a team of 11 surgeons, 20 nurses and other medical experts. The first face transplant in the world was carried out in France in 2005.
Sugar, sugar...honey, money

By Aws Alani, UK

The sugar tax is finally upon us here in the UK, but are corner shops or supermarkets for that matter likely to worry about this potentially threatening change to their flagship product line? The tax targets all drinks and equates to a tax of 2p per litre on those with the most sugar content. This could potentially equate to an increase in the price to the consumer, but bearing in mind that soft drinks are more accessible and cost less in the UK than in water in many Third World countries, it is doubtful that things will change markedly.

There is the argument that taxing tobacco has had an effect on the uptake of smoking and the consequent addiction, but the evidence for this is relatively sparse and weak. Although a worthy initiative, taxing drinks may result in a greater squeeze on those who can afford it the least and I doubt whether little Jimmy will stop his tearful tantrums for penny sweets as a result of a celebrity chef’s campaign as our sugar saviour. As a child of the eighties, these me of rock bands who decided that overconsumption is manufacturing pathology unheard of 50 years ago.”

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Overconsumption of sugar causes an inordinate amount of health problems. Indeed, Type II diabetes and obesity are leading causes of death and disability in the US, the birthplace of the canned bottle. The larger bottle may represent better value for money, but is less likely to represent better health value, especially since a reusable bottle is more likely to be sipped over hours than a can once opened.

As such, capable patients exert some control over lifestyle choices that influence their well-being. Unfortunately, regardless of the imminent extra tax on the already dirt-cheap confectionery, the inane responsibility held by the patient to self-govern will always trump our advice, treatment, knowledge or collective experience.

Society’s gluttonous overconsumption is manufacturing pathology unheard of 50 years ago.

One could argue that sugar pollutants much in the same way that inefficient power stations do. The societal repercussions need to be managed by all, with no or little comeback for the fizz producers. As carbonated drinks are so popular, these juggernaut companies are powerful and, as a result, denting their progress with a tax is unlikely to truly positively affect the general health of the population. In 2014, the UK sold soft drinks individually likely red, refreshment. These life-threatening conditions are in addition to our experiences of sugar-laden drink devastation. In contrast, but just as worrying, the emerging evidence shows that low-fat calorie drinks 49 per cent of drink consumption in 2014) actually fuel hunger and trick one's stomach into thinking that calories are on the way, only to be disappointed, resulting in further food-seeking behaviour. The ordering of diet beverages in all-you-can-eat restaurants may not be as ironic as I first thought!

Endo tooth wear seems to have been forgotten amongst overweight toddlers needing ear-to-ear clearances. From bulimics who like to taste but do not like their waist to the energy drink crew who prefer machismo gothic graphic designs, the younger generation is likely to experience more dissolution of tooth tissue. At the other end of the spectrum, obese patients are more likely to mask their overconsumption by putting on inches of the young—polypharmacy isdevelopment diabetes, which in turn causes an inordinate amount of health problems. Indeed, Type II diabetes and obesity are leading causes of death and disability in the US, the birthplace of the canned bottle. The larger bottle may represent better value for money, but is less likely to represent better health value, especially since a reusable bottle is more likely to be sipped over hours than a can once opened.

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Survey sees majority of British dentists rejecting Brexit

More than half would vote against the United Kingdom leaving the EU

By DTI

LONDON, UK: Were it up to dentists, the UK would remain a member of the European Union after the national referendum in June. According to an online survey conducted among Dental Tribune Online readers between February and March this year, a slight majority of dental professionals would vote for staying in the EU rather than leaving it.

After analysing the results of the poll, Dental Tribune found that more than 55 per cent of dentists who participated in the survey intended voting against Britain leaving the EU, while 44 per cent were in favour of a Brexit.

Less than 1 per cent were still undecided on the issue, but perceived an overall more negative future should Britain decide to split from the Union.

Similar responses were given by the participants when asked whether a Brexit would have positive or negative consequences for the country. A larger share of dentists, however, replied “I do not know” to this question.

The overall majority of respondents to the survey said they would definitely vote in the referendum. Only one in ten did not intend to participate in it.

The poll was conducted among 16,000 recipients of the Dental Tribune UK & Ireland weekly newsletter, with almost half of all replies from dentists in southern England, particularly London, which made up almost 20 per cent of the survey respondents. There was less participation by dentists from the northern regions, with slightly less than 30 per cent taking part in the poll. Only one in ten respondents were from the Midlands.

Dentists from Scotland, Wales and Northern Ireland, who made up 12 per cent of the participants in the poll, were split, with almost the same number voting for the Brexit as voting against it.

Almost one-third of those who responded to the survey said they were in private practice, while one-quarter said they were employed in the National Health Service. Forty per cent worked in practices that offered both NHS and private dental care services.

Regarding the age of the respondents, more than half were between 30 and 50 years old, followed by a large group aged 50 to 60.

Britons have to decide on 23 June whether they want the UK to remain a member of the EU. Mirroring the results of the Dental Tribune survey, the latest national polls indicate that the slight majority of the population will vote to stay in the UK.

However, 10 per cent of eligible voters have still not decided which way to vote. Prominent political and economic figures have argued that a decision to leave the EU will have widespread negative consequences for the UK.
Swiss dental company Curaden is one of the few businesses in the industry that adopt a holistic approach to dentistry. The company combines high-quality dental products, pioneering training systems and prophylaxis concepts for long-term oral health. In this interview, CEO Ueli Breitschmid talks about new ways and knowledge in dentistry and optimal preventive care as key to good oral health, as well as prevention programmes that both promote patients’ health and offer practices financial success.

Dental Tribune: Mr Breitschmid, Curaden aims to offer more than just dental care products. You advocate comprehensive training in the field of dental prevention. Why is this issue so important?

Ueli Breitschmid: Curaden is the only company that, in addition to manufacturing products, provides patients with the necessary knowledge and skills, in cooperation with trained instructors, to take control of their oral health themselves. We have developed our knowledge and products with the aim of teeth remaining healthy for a lifetime. Our corporate philosophy combines the innovative CURAPROX products, our dental educational system iTOP and the practical Prevention-One plan. Our goal is to reduce the prevalence of gingivitis, periodontitis and tooth loss. Therefore, we support comprehensive soft-tissue prophylaxis. Finally, gingival problems are still the most common cause of poor oral health. We support prophylaxis to this end with our great interdental toothbrushes, our iTOP seminars and other services.

In any oral health discussion, it is always important to look at the combination of a high-quality product and the trained application thereof. The product alone without a trained user changes little or nothing. Therefore, no per cent of people in developed countries have gingival diseases; because nobody has shown them proper oral hygiene. Only a well-trained person can motivate and instruct someone else.

How can control and continued motivation be achieved?

Patients and dentists should follow a regular schedule concerning both treatment and training. Today’s approach to oral dental visits annually is no longer appropriate. Going to the dentist or the dental hygienist should not be an annual event, but more frequent. Just think how often we enjoy a beauty treatment or a pleasant massage. White and well-kept teeth are part of the modern concept of body awareness, much like a trip to the fitness centre.

So, does this mean that most oral health problems can be solved through regular prophylaxis?

Dental prophylaxis is only one aspect of oral health. It seems much more important to consider dental training. For years, leading dentists and dental companies have been in favour of a change in dental education. Preventive dental therapy should hold at least the same position as restorative dentistry now better understood. Slowly but surely, dentists will be recognised for their role in medicine. They are the gatekeepers of health, because the mouth represents the basis of almost all chronic diseases. In time, dentists will measure blood pressure and take saliva samples or blood samples. It will become possible to decrease the prevalence of chronic diseases, including cancer, Alzheimer’s disease, cardiocirculatory control of individual prophylaxis for long-term dental health. This approach includes regular training, the proper tools and a good dose of motivation. First, we begin with the dental professionals, who pass their new knowledge and skills directly to patients. Our iTOP seminars are supervised by independent dentists and dental hygienists who have completed the training themselves.
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Poor root fillings result in stress and financial pressure in dentistry

By DTI

GOTHENBURG, Sweden: A new survey has linked the quality of root fillings to the level of stress dentists experience when performing the procedure and the fee charged. Some dentists reported that “good enough” was often a more realistic goal than optimal quality in light of the complexity of root fillings and insufficient time allocated owing to the associated treatment tariff, among other reasons.

According to the study, which was conducted as part of a doctoral thesis at the Sahlgrenska Academy, only half of root fillings that are performed in the Swedish public dental service are of good quality. Moreover, more than one third of root fillings show signs of apical periodontitis, which can lead to acute symptoms, such as pain and swelling, and may even spread and become life-threatening in some cases.

Aiming to investigate the reasons dentists accept technically poor root fillings, Lisbeth Dahlström, a senior dental officer and researcher at the Sahlgrenska Academy, conducted group interviews with 33 dentists from the Swedish public dental service.

The results showed that treatment was often associated with negative feelings, such as stress and frustration, and it was common for treatment to be performed with a sense of a loss of control owing to the perceived technical difficulty. Another cause of dentists accepting poorer root fillings was that allotted time for treatment according to the fee charged was insufficient, participants reported.

“The dentist then finds they are facing a dilemma, ‘to go back’ to the treatment, to optimize quality, or to offer care within the framework of the compensation and, thus, risk accepting an incomplete root filling,” Dahlström explained.

Regarding quality, the dentists interviewed reported uncertainty as to what constitutes reasonably acceptable quality. According to Dahlström, they often stated that “good enough” was a more realistic goal than optimal quality. However, despite the difficulties encountered, the survey also showed that the dentists wanted to provide good treatment and that they were very concerned about their patients, the researcher said.

In order to improve the quality of root fillings, Dahlström suggested measures such as increased opportunity for continuing education, time for discussion and exchange of experiences at the workplace, as well as investment in equipment that enhances treatment, shortens the time needed and improves visibility.

Each year, approximately 250,000 root fillings are done in Sweden and it has been estimated that there are at least 2.5 million root-filled teeth affected by periodical periodontitis.


Promising oral health care tech launched

By DTI

LONDON, UK: With the BioMin calcium-fluoride-phosphosilicate, dental researchers from Queen Mary University of London have developed a material that has the potential to significantly reduce dental decay and solve tooth sensitivity when used as an ingredient in common oral hygiene brands. On Wednesday, the first commercial product was presented to the public in the form of a remineralising toothpaste during a press launch at the Royal London Hospital Dental Institute.

The BioMinF will only be available to dental professionals in the UK through wholesalers for the time being. BioMin Technologies CEO Richard Whatley said: “A launch in high-street stores, however, is anticipated for the end of this year. For users who do not want to brush with a fluoride toothpaste, a fluoride-free version is currently anticipated for the end of this year. For users who do not want to brush with a fluoride toothpaste, a fluoride-free version is currently in development. Whatley further added that his company is talking about licensing the product for use in other dental products, including polishing pastes, varnishes and restorative dental materials.

“Our aim is for the BioMin brand to become synonymous with the treatment of tooth sensitivity in the eyes of both the dental profession and the general public,” he said.

In 2015, the promising invention received the Armourers and Brasiers’ Venture Prize, an annual award given to breakthrough innovations in materials science from the UK. A bioactive glass, it has been developed to adhere to tooth structure through a special polymer, from where it slowly dissolves ions that form fluorapatite, a mineral also found in shark teeth, over an 8-12-hour period to make teeth more resistant to acids from food.

According to BioMin founder and Queen Mary Director of Research Prof Robert Hill, the process has been proven to be more effective than the use of fluorides in conventional toothpastes or professional prophylaxis materials, which are washed away and lose their effect more quickly.

In addition, the fluorapatite formed from brushing with BioMin toothpaste has shown to effectively reduce dentine hypersensitivity by sealing open dentinal tubules in in vitro studies at Queen Mary. The team now intends to conduct long-term studies on the effects of the material over the course of the next two years.

As a scientist, perception varies between continents and regions, the experts chose nine finalists for the three competition areas: Asia Pacific, Dr Jineel Ham and HaiSeong Yoo (Korea), Dr Baijun Sun and Benhui Du (China), and Dr Tetsuya Uchimya and Michiro Manaka (Japan).

Europe, the Middle East and Africa: Dr Anna Giorgadze and Ilia Psarris (Greece), Prof Petra Gierthmu¨ hlen and Udo Plaster (Germany), and Dr Ferran Llan-sana and Juan Sampaol Reus (Spain).

North America and Latin America: Dr Gabriela Fappaterra and Libardo Garcia Tolosa (Colombia), Lucio Armando Quevado Hernandez and Ramon Sanchez Hernandez (Mexico), and Dr Luis Sanchez and Alic Aken (US).

The finalists’ projects will be presented and the first, second and third place winners announced at the awards ceremony in Madrid on 10 June. In addition, the winning cases will be introduced to the broader public through social media, at trade shows and other events, and in professional journals, the company said.

More information can be found at www.ipsmax.com.
Career opportunities and work–life balance in dentistry

By Dr Christine Bellmann

Dentistry is among the most rewarding professions and has a much broader scope of practice than ever before. Young dental professionals who have finished their studies and received their diplomas will have to individually decide on their career pathways. This choice is both exciting and difficult, as there are numerous options and opportunities to consider.

The transition from dental student to young working dental professional requires extensive adjustment. At university, students are told how to work, what to learn and what goals they need to fulfil. During practical work on patients, they are supervised by experienced dentists.

As a working professional, it is now up to each individual to assess patients on his or her own and to judge their needs and treat them accordingly. It is not just dental skills that are put to the test, however, as there are also other important skills that a working professional will need to have. These may be skills that are not taught at dental school, such as communicating with the patient, co-workers and assistants, as well as financial aspects and legal issues in the dental clinic. Acting correctly and appropriately is a substantial challenge, and may be overwhelming for some individuals. Being aware of those requirements is the first step to a successful transition.

Every graduate dental student has to decide where and how to embark on their professional careers. The majority of young dental professionals lay the foundation of their careers in private or public dental clinics, but some also remain at university to engage in research or teaching careers. Whatever way is chosen at this stage, it does not need to be the final decision. Paths can be changed and new ones explored, but the decision should be thought through, as the initial years in any profession form and influence one’s future career path.

Working in a dental office outside of university provides multiple options and opportunities. Dental practices come in every size and shape. There are small clinics and very large practices. Some have a specialisation or orientation, others are general dentistry practices. Each model has, for every individual, certain advantages and disadvantages, depending on one’s expectations and goals. A larger clinic, with more dentists, usually gives everyone more flexibility in relation to working hours and vacation planning, as well as in case of illness. Smaller teams can have the advantage of being forced to take more responsibility, from which great knowledge can be gained in living the concept of “learning by doing.”

Working in a clinic that has a certain specialisation will help a young graduate if he or she wishes to specialise in the same field, as knowledge can be gained during the daily workflow and, in combination with a postgraduate course, it can make the perfect choice. Choosing the right clinic can be challenging and sometimes the best choice is to go with one’s intuition.

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Purpose of specialisation

Many young dentists want to specialise in one of the many fields of dentistry. Once the decision has been made on the area in which to specialise, they should take their time to work out what is the right path of specialisation for them. What is their goal after specialisation? What is the specialisation to be used for: to work in a private dental clinic or establish their own clinic; or to enter into research and education at a university? And what is the goal for the practice?

There are many programmes on the market, and it is not always the best decision to choose the most expensive, most time-consuming or the one that is the furthest away from home.

Since there are courses and post-graduate education programmes all around the world, many young dentists leave their home countries to gain experience and specialisation abroad. That can be an amazing experience and much can be gained from it. However, it is not the right choice for everyone, as it can hold more challenges and risks than might initially be expected. Studying or working abroad needs to be thought through and well planned, otherwise it can very easily end in a major disappointment. At first, working abroad may seem to be a great opportunity and exciting, and it certainly can be, but it may not turn out that way. An accurate assessment of the goals and the desired outcome of a life in a different country needs to be conducted.

Others may decide to open their own dental clinic or take over an existing one. Running one’s own business is a great opportunity to work in a comfortable work environment because it is self-created. Aligning a dental office to individual expectations and having a financially successful and well-run clinic can be challenging. Like any other business, strategies and standard operating procedures in various fields need to be established. It is not only the clinical abilities of the dentist that are important. Equally important are economic factors, such as analysis of the local conditions, human resource management, marketing strategies and legal guidelines.

With so many exciting opportunities in the dental field and the numerous options for how and where to work, it is easy to lose track of other important things in life. Time with family and friends or time for leisure activities is very important. Finding a healthy balance between fulfilling career goals and having rewarding downtime is the key to a happy and healthy life. It makes sense to take the time to reflect on the past and think about future expectations of life and, perhaps, write those down to keep them in mind. During these decision-making processes, of all the possible choices that have to be made, the most important factor that should be considered is one’s private life and what one wants in life.

Dr Christine Bellmann is the Director of Dental Gateway, a global dental consulting agency. She can be contacted at bellmann@dentalgateway.com.
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Causes and treatment of breath odour

By Dr Paola Gomez-Pereira, UK

Breath odour is the presence of odorous volatile organic compounds in the breath of individuals. It’s widespread problem, as it affects a high percentage of the adult population, 70 per cent of the global population suffers from chronic oral malodour and 74 per cent considers it an issue. Breath odour has strong social implications for the sufferer and it significantly affects normal social interactions.

Breath odour can have physiological or pathological causes of intra- or extra-oral origin (Fig. 1). Physiological odour includes morning breath, which is transient and relates to low salivary flow during the night. Other lifestyle factors can influence it too, such as smoking, as well as the consumption of alcohol or odoriferous foods and drinks (garlic, onion and cabbage, among others). These are fairly common reasons for concern in the adult population; 30 per cent of the global population; 2.5 in the 5-point organoleptic scale) (Fig. 2a).4 Breath odour is generally assessed by organoleptic score, which is determined by a trained odour judge, who measures the strength of target odours and expresses the value according to a predefined scale from 0 (no odour) to 5 (strong malodour).

A niche for bacterial biofilms

The tongue has a very complex and rough surface structure covered with flexible papillae (Fig. 2b). Those papillae vary in shape, size and distribution pattern and give the tongue a surface with numerous crypts and fissures.7,8 This constitutes a perfect microbial niche for anaerobic bacteria to thrive and form thick biofilms largely undisrupted. Bacteria can degrade a complex mixture of amino acids and proteins from numerous origins (diet, debris, cells) with their complex enzymatic machinery. Particularly the degradation of amino acids, such as cysteine and methionine, produces VSCs with a very high odour power.1,2 The bacterial density on the tongue surface has been related to the degree of breath odour.3,4,5 For example, individuals with noticeable breath odour (above 2.5 in the 5-point organoleptic scale) have more than 1 × 108 bacterial colony-forming units per cm² of the tongue, while individuals with lower organoleptic scores harbour lower bacterial numbers (approximately 1 × 107).6,7 Therefore, in order to reduce breath odour in patients, the tongue bacterial density must be reduced and kept at low levels.

Treatment of oral malodour

There are numerous over-the-counter products for oral malodour and these can be divided into chemical and mechanical treatments.

Chemical treatments are mostly mouthrinses specifically developed for oral malodour, containing a combination of antimicrobials and metal ions. Commonly used antimicrobials are chlorhexidine and cetylpyridinium chloride (CPC), which have a strong effect in killing bacteria. Metal ions, such as zinc, bind to sulphur compounds and form insoluble complexes (zinc sulphide) that are not volatile and are therefore non-odoriferous.8,9,10 Another category of mouthrinses for malodour contains chlorine dioxide, which neutralises the sulphur gases and oxidises VSC, while the chlorine anions act as an anti-bacterial compound.11

While mouthrinses have the potential to be very effective owing to their antibacterial and oral malodour masking properties, they rarely provide a long-lasting result. They are effective for a few hours, but they have little effect on the tongue bacterial density.12,13 A possible cause of this limited effect on the tongue is that the active components of mouthrinses cannot reach the odour-producing bacteria. Biofilms that produce volatile gases are mostly located deep between the tongue papillae (Fig. 2d), where mixing and diffusion of active ingredients are difficult owing to the small papillary spaces, the viscosity of salivary molecules and the low permeability of biofilms. Guidelines for the treatment of oral malodour by dental professionals emphasise the need for tongue cleaning using scrapers or brushes.

Clinical studies have shown that the use of mechanical methods reduces the tongue coating.14-16 However, the effect on malodour is very short lived,19 which is probably due to the reduction of the bacterial numbers harboured on the tongue’s complex surface is due to the difficulty in reaching the biofilm between the tongue papillae. Moreover, as the tongue tissue is very flexible, the use of tongue scrapers could flatten the papillae, trapping the bacterial biofilm underneath and not removing it.

Combined approach for all-day fresh breath

The use of mouthrinses in combination with mechanical intervention could help the active ingredients penetrate deeper into the biofilm than when used alone, while simultaneously reducing the tongue coating and bacterial density. The combined approach of chemical and mechanical intervention could have a synergistic effect on oral malodour to deliver full-day
fresh breath, as has been shown in recent studies. In a recent clinical investigation, we showed that the combined use of a newly designed sonic tongue brush with an antimicrobial spray delivered a significantly superior reduction in breath odour than did the individual treatments.

Philips Oral Healthcare has recently developed and launched a new sonic powered tongue brush and antibacterial spray combination, Sonicare TongueCare+. The brush has been designed to penetrate between the tongue papillae and to provide thorough mechanical biofilm removal. Bristle dimensions and stiffness parameters were optimised based on analysis of the human tongue. The brush head consists of 240 flexible elastomer MicroBristles mounted on to a Sonicare power toothbrush handle, with 30,000 vibrations per minute to help break up any tongue coating and sweep away debris and bacteria (Fig. 3).

TongueCare+ brush is used in combination with the BreathRx antimicrobial tongue spray (Philips), which contains antimicrobial agents, such as CPC and zinc. In the first proof of principle clinical investigation of this technology, it was shown that the organoleptic score and the tongue bacterial density can be significantly reduced with a single use of TongueCare+ alone or BreathRx alone, significantly more than using TongueCare+ with TongueRx, measured up to 6 hours after each treatment. — See Fig. 4a. Total anaerobes at baseline, and 1 hour and 6 hours after each treatment. Source: www.iopscience.iop.org

VSCs, such as hydrogen sulphide and methanethiol, are toxic to periodontal tissue even when present in very low concentrations, so it has been hypothesised that they can contribute to the progression of gingival diseases. Therefore, maintaining a good tongue cleaning routine could have far-reaching implications.

Conflict of interest: Dr Paola Gomez-Perez is a senior scientist at Philips in Cambridge in the UK.
Biomimetic Restorations – Better, Quicker & Easier

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A natural tooth is composed of different layers of tissue and reproducing these is important in the restoration of anterior teeth in particular. In order to obtain a natural-looking vibrant restoration, the natural tooth has to be replicated in fine detail. In addition to the anatomy, the optical characteristics of the natural tooth structure should be reflected in each composite layer. These properties include brightness, saturation, hue, translucency, opalescence and fluorescence. IPS Empress Direct is a well-designed composite system consisting of 32 shades, five levels of translucency and seven characterisation shades. With this versatile range, the product meets all conceivable requirements for an aesthetic composite. Additionally, the material features exceptionally low sensitivity to ambient light, giving the dentist sufficient time to layer the composite and mould the restoration to impart a natural shape.

Clinical case

The case presented here demonstrates how an optimal restoration can be achieved with IPS Empress Direct. A 37-year-old female patient presented to our practice with both maxillary central incisors fractured to approximately one-third of the mesial area. The patient requested fast and minimally invasive restoration of the broken teeth. She did not want healthy tooth structure to be removed, which meant that crown restorations were not an option. A detailed clinical examination showed that the pulp of tooth #21 was exposed; however, the periodontal tissue was undamaged (Fig. 1). After discussing the treatment choices with the patient, we decided on performing endodontic treatment on the affected teeth and then reconstructing teeth #21 and #11 using a composite layering technique (IPS Empress Direct). A lingual silicone key would help in establishing the correct tooth shape.

A polarising filter assisted in evaluating the internal and external colour distribution of the natural teeth (Fig. 2). Based on the values we measured and the natural tooth colour, we selected the appropriate shades for the restoration, namely A2 and A3 for the dentine, A2 for the enamel, Trans 30, Trans Opal and suitable characterisation shades. In the reconstruction of the translucent enamel area, Trans 90 was mainly applied, and Trans Opal was mostly applied to imitate the structural features of the incisal ridge. In order to achieve a high bond strength, I continued with the total-etch technique using Tetric N-Resin (Ivoclar Vivadent).

I recommend using the OptraSculpt modelling instrument

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The restorations examined with a polarising filter showed optimal results. (Fig. 3)

Prepared teeth with wave-shaped bevels.—(Fig. 4) Phosphoric acid was applied to the bonding surface.—(Fig. 5) The lingual walls were reconstructed with IPS Empress Direct A3 Dentin and Tetric N-Flow.—(Fig. 6) The dentine was built up with IPS Empress Direct A3 Dentin and A2 Dentin.—(Fig. 7) The enamel was built up with A2 Enamel, Trans 30 and Trans Opal.—(Fig. 8) Outer contours and surface structures were created with a diamond bur.—(Fig. 9) Finishing and polishing were achieved with the Astropol and Astrobrush polishing sets.—(Fig. 10) Optimal result two weeks after placement of the restoration.—(Fig. 11) Even six months after placement, the restoration appeared exceptionally lifelike.—(Fig. 12) Viewed from the lateral side, the texture of the restored teeth looked vibrant.—(Fig. 13) The patient smiling with confidence.—(Fig. 14) Six months after the placement, no imperfections or changes in shade or shape, neither from the frontal nor from the lateral view, were noted (Figs. 11–13). Even when evaluated with a polarising filter, the restoration met all the requirements (Fig. 14).

The case described here shows that healthy tooth structure can be protected and preserved by using minimally invasive techniques and products, satisfying both the preferences of the patient and the requirements of the dentist. In this manner, superior restorative outcomes can be accomplished.
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Provider ID: 355051.
“Predictable cosmetic dentistry with Uveneers”

An interview with Dr Sigal Jacobson, Australia

By DTI

Recognising a gap in the market, a few years ago, Australian dentist Dr Sigal Jacobson developed a unique, minimally invasive template system that was designed to create beautiful direct composite veneers with predictable shapes and symmetry in only one visit. Now exclusively distributed by dental manufacturer Ultradent worldwide, the Uveneer system was recently on display at IDEM 2016 in Singapore. At the show, Dental Tribune had the opportunity to speak to her about the development of the product and what makes it unique.

Dental Tribune: Dr Jacobson, could you please tell us the incentive behind the development of Uveneers?

Dr Sigal Jacobson: During my 20 or so years as a dentist, I developed a strong love for cosmetic work. Minimally invasive dentistry was something I wanted to follow, especially the use of composites. Much of the temporary work I did with the material lasted for many years, which showed how good composites had become.

I was still struggling, however, to do cosmetic dentistry with composites because it was very time-consuming and an artistic challenge overall. While I took many courses to learn how to place composite veneers, the time factor remained an issue. That is why I looked into the market to find out what else could help me to make treatment quicker.

While everything is templates nowadays, we did not have templates for composite veneers and so I started to work on this idea. I was surprised that no one had done it before, because it is so simple: just place a template, press and cure. I first used it in my clinic and because it was so successful, my husband and I took it to engineers in Australia. After two years of developing and perfecting the system, we finally came out with the Uveneers. I was surprised at how well it was received by dentists. Apparently, it addressed not only my problem but also those of other dental professionals.

How did the collaboration with Ultradent arise?

As soon as we had the first samples ready, we went to the Chicago Dental Society Midwinter Meeting. There, we literally had the worst booth, but we pulled through. We were very busy and after the positive feedback, we began to search for distributors and markets and to sell Uveneers worldwide over the Internet.

Later at the Greater New York Dental Meeting, we were approached by Dr Dan Fischer, the CEO of Ultradent, who had a close look at the system. Shortly thereafter, Ultradent became the exclusive distributor of Uveneers worldwide. Owing to the company’s overall minimally invasive dentistry approach regarding products, Uveneers are a very good fit for Ultradent.

What are the main advantages of the system?

First of all, it allows one to perform predictable dentistry. Cosmetic dentistry is all about predictability and it is important that one can predict the outcome before making the composite veneers. One can actually see the outcome without having to bond and etch. This saves a great deal of time.

Furthermore, it is very affordable, so dentists can increase their profits starting from the first case while being able to help patients in a very short amount of time.

In addition, Uveneers are suitable for not only direct composite veneers but also temporaries and mock-ups to show the patient the expected outcome. There are so many other uses for Uveneers. They are also autoclavable, so one can use the templates many times over.

As a dentist, I wanted to do something for other dentists. We like something that is reusable and that is quick, simple and not too expensive. We gave users a one-month money-back guarantee. While we sold thousands, not a single one came back.

This is the first generation of this product. What is in store for Uveneers in the future?

We intend coming out with other developments around the product, but for the moment, I want dentists to acquire the first one. The second generation will definitely be a surprise.

Thank you very much for the interview.

Dr Sigal Jacobson

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A contemporary endodontic approach using bioceramic cement

By Prof. Leandro Pereira, Brazil

Endodontics is the specialty in dentistry concerned with preventing or treating pathologies of pulpal and periapical origins. The ultimate goal is to resolve the endodontic disease and allow the affected tooth to re-establish its aesthetics and function through a complementary restorative treatment.

Obturation of the root canal system is an important step in any endodontic treatment. Its function is to fill and seal the canals to prevent their recontamination. With the evolution in knowledge of the intra-canal microbiology and the impact of new canal modelling instruments with continuous or alternating rotation, we know that it is not possible to eliminate completely the microorganisms inside the endodontic microanatomy. However, we also know that this is not necessary for success and that the significant reduction in the levels of intra-canal infection, in most cases, is sufficient to achieve success.

Thus, in order to gain the benefit of this material’s biocompatibility, a new class of obturation endodontic cement was created, known as silicate-based cements. This designation is derived from the components that make up MTA, and are present in these cements (tricalcium silicate, dicalcium silicate, calcium oxide and tricalcium aluminate).

The clinical case described in this article demonstrates the use of MTA-FILLAPEX (Angelus) with gutta-percha cones for endodontic obturation in a case of endodontic treatment performed in a single session. A 56-year-old female patient presented to the office complaining about spontaneous pulsing pain in the left mandibular region that did not respond to analgesics or anti-inflammatory agents. All of the teeth in this quadrant tested negative to apical pulpal, as well as to vertical and lateral percussion. Thermal tests of tooth #37 showed an exacerbated, long-duration positive response to both cold and heat. The other teeth in the quadrant showed a slight, short-duration positive response to cold and a negative response to heat.

According to the classification of the American Association of Endodontists, tooth #37 had a pulpal and periapical diagnosis of irreversible inflammatory pulpitis with a normal periapex (Figs. 1 & 2). Endodontic treatment was indicated and conducted under an operative microscope, with a magnification varying between 2.5× and 6×. Thus, in order to gain the benefit of this material’s biocompatibility, a new class of obturation endodontic cement was created, known as silicate-based cements. This designation is derived from the components that make up MTA, and are present in these cements (tricalcium silicate, dicalcium silicate, calcium oxide and tricalcium aluminate).
Access to the pulp chamber was achieved with a #1013 spherical diamond bit, followed by a #3082 conical-truck diamond bit (Figs. 3 & 4). The finishing was done with a conical-truck ultrasonic diamond tip (E7D, Helse). After the canals had been located, a #10 K-type-file was slowly introduced to two-thirds of the initial radiographic length of the tooth. This was followed by a #25.06 reciprocating instrument (RECIPROC, VDW) with apical progression in sequences of three movements of around 1 mm in amplitude in the apical direction. With each sequence of three movements with the reciprocating instrument, irrigation was performed with 5 ml of 2.5 % sodium hypochlorite, and a #10 K-type-file was taken to two-thirds of the radiographic length of the tooth. This procedure was repeated until the #25 instruments reached this pre-established length.

The next step was to establish the true working length with a foramen locator. Along the working length, the diameter of the region was verified through introduction of manual K-type-files of different diameters until one of them was observed to adapt to the lateral walls of the canals. In the mesial canals, we used the #30 instrument, while in the distal canal, we used the #40. In this way and using the same initial operative sequence of preparation, modelling and irrigation, the mesial canals were prepared for the RECIPROC 40 instrument, and the distal canal was prepared for the RECIPROC 50 instrument.

After modelling of the canals, the system of canals was dried and filled with 17 % EDTA-T, and an Irrisonic ultrasonic tip (Helse) was used to passively activate the substance for three cycles of 15 seconds with renewal of the substance for each cycle. After the ultrasonic passive activation, the canals were again irrigated with 5 ml of 2.5 % sodium hypochlorite (Fig. 5). The main gutta-percha cones were tested and adjusted. The system of canals was then dried with aspiration micro-cannulas connected to a vacuum pump.

The MTA-FILLAPEX cement was prepared and introduced into the canals using the main gutta-percha cones (Fig. 6). The excess from the cones was removed using a heat transfer system (Touch’n Heat, Kerr) and cold compressed vertically. The pulp chamber was sealed with photopolymerisable composite resin, and the patient was sent to her dentist, who would perform the definitive restoration of the dental element (Fig. 7).

After 17 months, the patient attended a control consultation, underendodontic success was evident on the radiograph (Fig. 8), owing to the absence of signs and symptoms, physiological functioning of the tooth, normality of the peripex and reabsorption of the surplus MTA-FILLAPEX.
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