More UK dentists see no future for their profession

By DTI

BIRMINGHAM, UK: Recent changes to the dental care system seem to have taken their toll on dentists’ expectations for the future of their profession. According to a recent poll conducted by Birmingham financial service provider Wesleyan, half of the dentists surveyed stated that they would advise against entering the field when asked whether they would recommend dentistry as a career to friends or family members.

Most of those surveyed named increasing costs, including those for education and training, along with changes to pay and working conditions, as the main reasons for the grim future of the field. The overall majority admitted that pressure on the profession owing to these changes has increased.

Other issues, such as the introduction of the new NHS dental contract and the changes to the NHS Pension Scheme, were also identified as having an impact on the field in the years to come.

“There are huge stresses in the dental profession and great unhappiness, even fear, regarding our regulator, not to mention an uncertain NHS future,” Judith Husband, a dentist and member of the Wesleyan Members Advisory Board, said. “More than half of dentists in England and Wales are associates and, because of the massive rise in the value of practices, it is becoming increasingly difficult for those with an ambition to own their own practice to actually achieve this.”

In an earlier Wesleyan poll conducted among dentists last year, only every third dentist said that he or she would recommend the profession to others. In sharp contrast, more dentists then ever would choose to enter the profession again if given the opportunity to start over. According to the latest poll, almost two-thirds of dentists would choose the same career path again, compared with 60 per cent in 2014.

“Practising dentistry and looking after patients remains a rewarding career with lots of varied opportunities,” remarked Husband on the results.

One in two dentist would not recommend dentistry as a career.

World largest dental companies merge

DENTSPLY International and Sirona Dental Systems have entered into a definitive merger agreement and will operate under the name of DENTSPLY SIRONA in the future. Both companies will retain their respective headquarters. The current DENTSPLY head office in York will serve as the new company’s global headquarters, while the international headquarters will be located in Salzburg.

Upon close of the transaction, Jeffrey T Slovin, current president and CEO of Sirona, will serve as CEO of DENTSPLY SIRONA and will be a member of the board of directors. Bret W Wise, current chairman and CEO of DENTSPLY, will assume the position of executive chairman of the newly founded company. In their respective positions, they will collaborate in executing the corporate strategy and in integrating the companies and their respective corporate cultures.

Together, the companies expect to generate a net revenue of about US$3.8 billion (€3.4 billion) and adjusted EBITDA of more than US$900 million (€796 million), excluding the incremental benefit of synergies.
First Brit to assume presidency of world’s largest ortho body

By DTI

LONDON, UK: Former President of the British Orthodontic Society Dr Allan R. Thom is the new President of the World Federation of Orthodontists (WFO), the organisation announced on the last day of its 2015 international congress in London. He is the first orthodontist from the UK to assume the presidency of the specialist body, which represents 150 orthodontic societies around the globe.

Thom is taking over the role from Dr Roberto Justus from Mexico, who has headed the WFO for the last five years. In his first speech, he said that under his presidency, the WFO will help young dentists and those living in areas of civil unrest to play a more active role in the organisation.

There must be strong support for our present fellows and elected representatives in these countries who are trying to maintain both a service and high standards for patients under challenging conditions,” he said.

Thom is’s term as president will end in 2020. An expert witness from Tunbridge Wells in Kent, Thom is has been a consultant orthodontist and author of clinical books for over 30 years. Among other things, he helped to establish an orthodontic service in Malta when working as a consultant adviser to the country’s health department. He has also served on the WFO’s Executive Committee for over a decade.

Maternal stress linked to higher caries prevalence in children

By DTI

SEATTLE, USA/LONDON, UK: New research has related chronic maternal stress to a higher prevalence of cavities among children. The study, which was conducted by researchers at King’s College London and the University of Washington, further showed that chronic stress levels also influenced mothers’ care-taking behaviors, such as breast-feeding, dental visits, and giving breakfast daily.

The findings showed that caries was more common among children whose mothers had two or more biological markers of AL compared with no markers—44.1 per cent vs. 27.9 per cent. They further identified that maternal AL was associated with socio-economic status, affecting care-taking behaviors, such as breast-feeding, dental visits, and giving breakfast daily.

“Mothers with lower income were significantly less likely to breastfeed or to have taken their child to the dentist in the prior year. They were also less likely to feed their child breakfast than higher income counterparts. It is important to better understand the dynamics of these links, so that we might develop significantly less likely to breast-feed than those with a normal AL level. This behavior was found to affect caries prevalence in children, as dental cavities were almost twice as common among children whose mothers did not breast-feed than those whose mothers did—65.9 per cent vs. 37.1 per cent.

“This study uniquely highlights the importance of considering the influence of socioeconomic status and maternal stress on children’s oral health through mothers’ struggles to adopt healthy patterns that are major predictors of dental cavities, such as brushing her children’s teeth regularly, maintaining healthy dietary habits and taking regular visits to the dentist for preventive care,” Erin E. Masterson, a PhD student from the schools of Public Health and Dentistry at the University of Washington, said.

“Policy that aims to improve dental health, particularly the prevalence of cavities among children, should include interventions to improve the quality of life of mothers. Chronic maternal stress as a potential risk factor is something we need to consider, in addition to the wider implications of maternal wellbeing, social, and psychosocial environment on dental health,” Sahbadi concluded.

The study, titled “Maternal Allostatic Load, Caretaking Behaviors, and Child Dental Caries Experience”, was published online ahead of print on Sept. 17 in the American Journal of Public Health.
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Short-term gains...long-term problems?
The emergence of STO and its future implications in general practice

By Aws Alani, UK

The provision of orthodontics can be a life-changing experience for young patients whose “crooked” teeth can affect their confidence and self-esteem. Indeed, where mature patients present with a history of malalignment, equally beneficial and fulfilling results can be achieved. In government-funded systems, patients with congenital abnormalities receive treatment that is essential to their ongoing oral health. Restorative dentists work closely with orthodontists, who can appreciate how small details can aid in achieving positive restorative outcomes.

As a young dentist, I corrected a tooth in crossbite with a simple T-spring appliance. It was enjoyable and brought a different type of delayed gradual satisfaction to the more cerebral but tenuous molar endodontics or the more artistic and instant composite build-up. I was not a specialist, but I managed to do some orthodontics. In contrast to my experience, general dental practitioners are now more routinely providing tooth movement with the emergence of short-term orthodontics (STO). This has resulted in some controversy as to the methods of achieving “straighter” teeth. Indeed, some may consider STO as an emerging entity competing with specialist orthodontics, but should it be?

The specialist training pathway for orthodontics involves a competitive entry three-year full-time course linked with the achievement of a master’s level qualification that many may feel daunting by. Indeed, navigating the pathway from start to finish can be difficult academically and financially when factoring in fees and assessment timings during training. Once qualified, the majority of these specialists reside like the majority of all specialists, in the south-east of England. With this skewed distribution of specialists and assumed need for access, it might seem prudent for general dental practitioners to contribute to meeting the need for orthodontics.

Indeed, the long-cited managed clinical networks have yet to be fully realised, although all planning and documentation related to managed clinical networks identify general dental practitioners as integral to the function of the network. The number of orthodontic therapists has gradually increased over the last ten years or so since inception of the first courses in Wales and Leeds. Therapists are allegedly more cost-effective to train and employ in a large orthodontic practice; however, unlike their hygiene or therapy colleagues, they cannot practise without a specialist’s treatment plan and supervision. Patients who qualify for orthodontic treatment under the UK government-funded system need to be assessed according to the index of orthodontic treatment need. There will be an obvious shortfall of adults or adolescent patients with minor malocclusions who do not meet the criteria who would like their teeth straightened. This cohort may have to seek treatment privately from orthodontic specialists or general dental practitioners. As such, these minor or straightforward cases may be managed in a number of different settings utilising various techniques with the advent of STO. This may have resulted in some territorial paranoia between the two camps of traditional orthodontics versus STO systems. Conversely, it may be that differing scientific, technical and ethical ethos on managing the same problem is the source of the debate.

Quick and easy?

Commercialisation has modified the provision of orthodontics in the UK. Indeed, there are now orthodontic brands with courses attached and a
The rapid development of STO has not escaped the venture (or some may say vulture) capitalists. In the same vein as DIT Whitening and sports guards, one can now have one’s teeth straightened via online companies using products delivered by Her Majesty’s Royal Mail and so cut out the middleman (i.e. the dentist). To my knowledge, STO has yet to make it on to the price list of Samantha’s, a beauty salon in Peckham.

What may cause fear and worry is the provision of tooth movement set against a backdrop of a focus on increasing revenue and patient consent, which may detract from the real reasons we are providing the treatment. The risk and benefit of treatment must remain balanced or be rebalanced in favour of the patient.

The best things in life are rarely quick, easy and without reflection. While learning or training, one gains knowledge from one’s mistakes and learns by way of osmosis from those of individuals one hopes to emulate. Learning or training, one gains by way of osmosis from those already wise, healthy and the patient presents with but also to prepare them mentally and efficiently. Treatment planning takes a time out of one or less can provide equally good treatment, provides the patient with a treatment plan lasting half a year or less can provide equally good results. This is unfortunately not always readily available. In some Australian jurisdictions, there are specific guidelines that need to be adhered to for promotion of cosmetic treatments and they specifically cover before and after treatment adverts, which we know in the UK is a popular practice among the cosmetically driven. This is commonly one of the best things in life is overcoming challenges. The patient presents with but also to develop a lasting patient rapport.

Equally important, patients need to be provided with information. In this situation, is it possible that a one- or two-day course with a treatment plan lasting half a year or less can provide equally good results. This is unfortunately not always readily available. In some Australian jurisdictions, there are specific guidelines that need to be adhered to for promotion of cosmetic treatments and they specifically cover before and after treatment adverts, which we know in the UK is a popular practice among the cosmetically driven. This is commonly one of the best things in life is overcoming challenges. The patient presents with but also to develop a lasting patient rapport.

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Advertising cosmetic treatments the fair dinkum way

The Australian health ministry recently examined the provision of cosmetic procedures and in particular the modes of promoting the treatments. The working group found that advertising and promotion are more often than not focused on the benefits to the consumer, downplaying or not always mentioning risks. The group went on to identify advertising practices that were not driven by medical need and where there was significant opportunity for financial gain by those promoting these. They identified the need to regulate promotion and advertising, both factually and factually, easily understood information from a source that is independent of practitioners and promoters. This is unfortunately not always readily available. In some Australian jurisdictions, there are specific guidelines that need to be adhered to for promotion of cosmetic treatments and they specifically cover before and after treatment adverts, which we know in the UK is a popular practice among the cosmetically driven. This is commonly one ideal, perfect case showed on the front end of the practice website with no mention of any problems, either acute or chronic. Another aspect of the report detailed prohibited time of the practitioner’s fees by way of free consultations for the purposes of treatment uptake. The latter is something that has seen STO promoted by way of voucher deals on the Internet or via smartphone applications. Others may consider such a practice as loss leading, one could ask who is losing and who is gaining and at what price.

One important aspect of the report identified the wider social impact of cosmetic procedures in that people may become increasingly dissatisfied with themselves and their appearance, culminating in deeper concerns for the person and reducing scope for individuality. Many dentists throughout the country may have a slipped contact here, a rotation there or a space distal to a canine who are uneasily healthy and the patient presents with no concerns could be considered unethical and worryingly dishonourable.

Relapse of confidence

In a recent publication from an indemnity provider, orthodontics was identified as an emerging area for claims against their clients. It is likely to be the tip of the iceberg, whose size will probably continually grow as more and more orthodontics is provided and the reputation of which may only become apparent gradually in the future.
The concept of osseointegration has been applied to dental implants for several decades. As an orthopaedic surgeon and engineer, Dr Rickard Brånemark has continued the work of his famous father by adapting the concept to the treatment of amputees. In an recent interview with Dental Tribune at the EAO congress in Sweden, Brånemark explained the benefits and future possibilities of osseointegrated amputation prostheses.

Dental Tribune: Dr Brånemark, could you please give an overview of the development of osseointegrated prostheses?

Dr Rickard Brånemark: The work started by my father was the foundation of what we do in orthopaedics today. Using his concept, I developed new treatments for amputees based on osseointegrated implants, which I have been performing for about 25–30 years now.

Since 1998, I have mostly worked with my own companies, namely Brånemark Integration, the dental company I started with my father, and Integrum, which does all the development for orthopaedic osseointegration. However, we now also have multinationals collaborations with universities in Gothenburg, Vienna, San Francisco and Chicago, and hopefully also Göttingen in the near future. As the Swedish implant system has recently been approved by the US Food and Drug Administration (FDA) for the treatment of amputees, I am currently establishing an orthopaedic osseointegration centre in San Francisco and am working closely with the US Department of Defense, which has many soldiers with amputations and is thus very interested in supporting our work.

What do you consider the main challenges of this treatment?

Anchoring something to the bone is the core of osseointegration technology and that is a fairly robust technology we have proven in millions of dental implants. However, in orthopaedics, we face additional challenges. There are, for example, no materials available today that are strong enough to withstand 20–50 years of high physical activity. Therefore, we have developed and continue to develop new materials and surfaces that better withstand the higher loads.

Another important concern is the mucosal area and skin penetration, which is maybe even more challenging. We are working with a concept very similar to the old Brånemark protocol and the bone-anchored hearing aid in that we have a smooth surface that is not an attachment. There are many groups working with attachments and, as far as I know, all have failed, especially in the orthopaedic field.

However, just like with every surgical procedure, the outcome largely depends on the skills of the surgeon too.

For the last six years, you have also been using osseointegration in conjunction with implanted electrodes. Could you tell us more about this programme?

Yes, we are also developing the next generation of amputation prostheses. In addition to the osseointegrated implant, we are able to attach electrodes to muscles and nerves to have a brain-controlled prosthesis, which helps us to direct the prosthetic device in a much better way and provides feedback. This is extremely important for truly restoring function.

The main advantage of our approach compared with our competitors is that they have to use wireless technology because they do not have the means to bring wires out of the body owing to the risk of infection. However, we have this fantastic osseointegrated implant to use as a conduit so that the wires can pass through the implant system. Similar to a fibre-optic Internet connection, the wired connection in a robotic arm is much better, stable and robust.

We have already successfully treated one patient. However, our research is still in the early phase, but I think we could do amazing things in the future.

Do you think that osseointegrated prostheses could potentially replace traditional prostheses in the future?

This treatment would not apply to amputations of the lower leg as a result of poor circulation caused by diabetes or vascular diseases related to smoking. Such patients constitute about 90 per cent of the amputee population. However, the younger population who have been in road or war accidents or who have musculoskeletal tumours, which are more likely to occur in younger patients, will be candidates for this treatment.

If the technology continues to be as promising as it appears now, the majority of patients will opt for it—just like they now have the choice between dentures or fixed dental implants, which are much better for the patient. There will be a shift, but this will take some time. The introduction of dental implants took about 17 years, similarly, this shift could take another ten to 20 years. However, receiving FDA approval and having the system in use by the military could definitely speed up the establishment.

Overall, this treatment offers many alternatives to conventional treatments. However, there is often too much conservatism in the dental and medical fields when it comes to innovations, but I think we need to stay open-minded to new crazy ideas. This research shows what might be possible in the future. It might be able to restore sensory function of a non-existing limb, creating good artificial sensations. It also shows that the dental and medical professions should work more closely together. As one can see, there are many synergies that could be drawn from the fields of dental and orthopaedic research in our case. The idea of translation of knowledge was also the original idea of the EAO, which has now become a purely dental meeting. This is a pity because we have to collaborate more, but maybe there will be more cross-disciplinary presentations and meetings in the future.

Thank you very much for the interview.
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.
FDI releases second edition of Oral Health Atlas

By DTI

BANGKOK, Thailand: The FDI World Dental Federation has released the second edition of its Oral Health Atlas at the Annual World Dental Congress (AWDC) in Bangkok in Thailand. Titled The Challenge of Oral Disease—A Call for Global Action, it aims to serve as an advocacy resource for all oral health care professionals and recommends strategies to address the global challenge of oral disease.

At the launch event held at the Bangkok International Trade and Exhibition Centre, Dr Hubert Benzian and Prof. David Williams, the publication’s editors-in-chief, presented the new edition of the atlas and spoke with DTI group editor Daniel Zimmermann about the contents of the book and the global challenge of preventing oral disease and implementing adequate oral health care worldwide.

The first edition of the Oral Health Atlas, titled Mapping a Neglected Global Health Issue, was released at the FDI 2009 AWDC in Singapore and highlighted the extent of the problem of oral disease worldwide. The second edition of the atlas provides an update of the global health challenge and reflects on policies and strategies that address the burden of oral disease, such as tooth decay, periodontal disease and oral cancer, Benzian pointed out.

The book summarises the key oral health issues based on the latest available information from various international sources, Benzian and Williams explained, including the impact of oral disease, major risk factors and inequalities in oral health, as well as oral disease prevention and management. Moreover, it aims to ensure that oral health is granted higher priority on the global health development agenda. Written for national dental associations, health organisations, industry professionals and the general public, the atlas provides them with the means to address policy-makers, governments and local authorities based on sound facts so that they can better advocate for change in oral health-related policies, Williams said.

According to the atlas, only about two-thirds of the world’s population have access to adequate oral health care, even though oral disease, particularly tooth decay, is among the most common human diseases. “Untreated tooth decay is the most common health condition of children across all countries, recently confirmed by the Global Burden of Disease Study looking at the burden of 381 diseases and conditions,” said Benzian. “Children with severe untreated tooth decay are impacted in their growth, have frequent episodes of pain, miss days in school and have a generally lower quality of life,” he continued. They also usually have the lowest access to oral health care and preventive services, added Williams. Therefore, the two editors-in-chief hope that the second edition of the Oral Health Atlas will most of all serve as an advocacy tool for institutions, policymakers and dental associations in their effort to improve access to oral health care worldwide.

The compilation of the new edition of the Oral Health Atlas was supported by the Hong Kong Dental Association and the FDI’s Vision 2000 oral health initiative. The book content includes chapters and data from 30 contributors, and was reviewed and edited by the two editors-in-chief.

The atlas can be downloaded free of charge from the FDI website and will be translated into the FDI’s official languages of French and Spanish. These versions will be available electronically in early 2016.

Clear aligners more beneficial than braces

By DTI

MAINZ, Germany: In recent years, clear aligners have become a favourable treatment alternative in orthodontics to fixed orthodontic appliances (FOA). However, there are few studies about the effects of aligner treatment on oral hygiene and gingival condition.

A team of German researchers has now compared the oral health status, oral hygiene and treatment satisfaction of patients treated with FOA and the Invisalign aligner system. They found that Invisalign patients have better periodontal health and greater satisfaction during orthodontic treatment.

To date, the majority of patients, particularly during childhood and adolescence, are treated with FOA. However, these appliances tend to complicate oral hygiene and thus interfere with patients’ periodontal health. Moreover, treatment with FOA is not very popular in adult orthodontics for aesthetic reasons. Therefore, other orthodontic techniques have been developed to improve aesthetics and simplify oral hygiene procedures. An alternative to FOA is clear aligners, which are discreet and have the advantage of being removable during oral hygiene and eating or drinking. The use of clear aligners has increased greatly in the last decade; one prominent example being Invisalign, produced by Align Technology since 1999. However, only a limited number of studies have compared the effects of Invisalign and FOA on oral hygiene, the researchers from the Johannes Gutenberg University of Mainz pointed out.

Their study included 100 patients who underwent orthodontic treatment, divided equally between FOA and Invisalign, for more than six months. The researchers performed clinical examinations before and after treatment to evaluate the patients’ periodontal condition and any changes. Furthermore, a detailed questionnaire assessed the patients’ personal oral hygiene and dietary habits, as well as satisfaction with the treatment. All of the patients received the same oral hygiene instructions before and during orthodontic treatment. This included the use of toothbrush, dental floss and interdental brushes three times daily.

The data analysis showed no differences between the two groups regarding periodontal health and oral hygiene prior to the orthodontic treatment. However, the researchers observed notable changes in periodontal condition in both groups during orthodontic treatment. They found that gingival health was significantly better in patients treated with Invisalign, and the amount of dental plaque was also less but not significantly different compared with FOA patients.

The questionnaire results showed greater satisfaction in patients treated with Invisalign. Only 6 per cent of the Invisalign patients reported impairment of their general well-being during orthodontic treatment, compared with 46 per cent of the FOA patients.

Other negative effects that also were significantly higher in FOA patients included gingival irritation (FOA: 38 per cent, Invisalign: 14 per cent), being kept from laughing for aesthetic reasons (FOA: 26 per cent, Invisalign: 6 per cent), having to change eating habits during orthodontic treatment (FOA: 70 per cent, Invisalign: 50 per cent), and having to brush one’s teeth for longer and more often (FOA: 84 per cent, Invisalign: 51 per cent).

The researchers concluded that orthodontic treatment with Invisalign has significantly lower negative impacts on a patient’s condition than treatment with FOA, both with regard to gingival health and overall well-being.
NEC welcomes dental professionals to BDIA Dental Showcase 2015

By DTI

In October, the National Exhibition in Birmingham becomes the epicentre of all things dentistry in the UK again. This year’s show, which follows a highly successful edition in London, promises to set another milestone with a parade of dental companies, dealers and service providers showcasing their portfolios of innovative products and solutions for dental practices and laboratories. Some of them will be available to dental professionals in the UK for the first time, such as the TSDi Tongue Sanitizer, a revolutionary device that simply fits onto the saliva ejector and effectively removes bacterial tongue coatings in just one minute.

On display will also be new and updated equipment such as handpieces, dental units, practice management systems or whitening solutions. Overall, up to 350 dental companies have registered for this year’s exhibition, which will run from 22–24 October at Britain’s largest convention and exhibition centre.

“There is no better way to see, touch and use all manner of dental equipment. With over 300 exhibitors showcase is a great opportunity for the whole team to keep up to date with a vast range of products, from instruments and devices to technology, software, regulation and government policy. In fact, all the things needed to keep your practice one step ahead,” said BDIA president Mike Cann.

Along with the industry showcase, over 100 mini-lectures will be held over all three days, including product presentations and papers on clinical issues discussed by nationally distinguished experts. By attending these lectures, visitors are entitled to continuing professional development certification. Instructions on how to obtain the certificates are provided on the show’s website.

Visitors who have not registered for the show in advance can still gain admission onsite. Daily news and updates from the show will be available at the DTUk website and through the Daily Dental Tribune UK newsletter. To access the news stream, please scan this QR code with your mobile device.

Any non-compliant or counterfeit medical device is a risk to public safety

An interview with MHRA investigator and BDIA Dental Showcase presenter Maxine Marshall, London

In response to an increase in counterfeit and unapproved dental products seized in the UK, the Medicines and Healthcare products Regulatory Agency (MHRA) launched an initiative in partnership with the British Dental Industry Association (BDIA) last year to make dental professionals aware of the dangers these products can pose to their own and their patient’s safety. Dental Tribune had the opportunity to speak with investigator Maxine Marshall, who will discuss the dangers of buying dental products online during her mini-lecture programme in Birmingham, about the outcome and what needs to be done to ensure the removal of these products from the market.

“Maxine Marshall: Most of them were: In the years 2013 and 2014, we seized about 12,000 individual pieces of dental equipment, with the majority being curing lights, dental handpieces, files, pliers and other equipment that dentists use. That was quite a large seizure for that year.

What is the estimated number of unknown cases?

Unfortunately, we do not know and this is one of reasons that we are continuing our work with the BDIA. This year, our main focus is to communicate to health professionals that they need to report to us if there is an incident with the equipment purchased or if they think it is not what they had bought, instead of disposing of it. They should submit a report. Any non-compliant or counterfeit medical device is a risk to public safety or patient safety. Our main objective is to try to stop such products coming into the UK at the port of entry, but we can only do that if we can trace the product back to the source from which it was purchased.

Purchases of critical devices can be made through various channels nowadays. What are the ones to be the most cautious of and what product categories are the most sought after?

Online purchases are made mainly through eBay or Google.

There, one can simply search for handpieces or curing lights, for example, and from there be taken to the respective websites. The majority of the devices that we seize in the UK come from China via the ports and quite often through fulfilment houses. Of most concern are dental handpieces, especially those that run at very high speeds. If something happens in the patient’s mouth when using such a device, it can be quite nasty.

Together with the BDIA, you launched the Counterfeit and Sub-standard Instruments and Devices Initiative last year to heighten awareness of these products among dental professionals. Have these efforts paid off in your opinion?

From 2014 to 2015, we have actually seen a reduction in the number of investigations we conducted. Our latest figures are from four weeks ago. We hope that this information is getting out there, if not initially to everyone, but we are getting there.

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Thank you very much for the interview.

Visitors who have not registered for the show in advance can still gain admission onsite. Daily news and updates from the show will be available at the DTUk website and through the Daily Dental Tribune UK newsletter. To access the news stream, please scan this QR code with your mobile device.

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Show Tribune

The World’s Event Newspaper · United Kingdom Edition

Show Tribune

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“Any non-compliant or counterfeit medical device is a risk to public safety”
BDIA extends Showcase contracts

The British Dental Industry Association (BDIA) has signed new contracts with both the NEC in Birmingham and the ExCeL London Exhibition and Convention Centre in April to hold its Dental Showcase for another three years in each venue. Alternating between the two cities, the annual dental show attracts up to 10,000 visitors every year.

According to the BDIA, the contracts secure its partnership with ExCel London for the upcoming shows in 2016, 2018 and 2020. The NEC, which will host this year’s edition, has agreed to host the event in 2017 and 2019.

With an overall space of 186,000 square metres, the NEC is Britain’s largest exhibition centre. It also hosts the Dentistry Show organised by CloserStill Media in Coventry every year in spring. The BDIA’s partnership with ExCel London began in 2002. Last year’s show there saw an overall attendance by 350 exhibitors and 9,500 professional visitors, according to the association.

“It is not easy to find suitable venues for a show of this size so securing contracts with both ExCel and the NEC that will give us stability for the next six years is a significant achievement for us,” Executive Director of the BDIA Tony Reed said.

An ExCel London representative commented that his company is committed to helping the event grow with further investment in the venue’s infrastructure in the year’s to come.

BDIA extends Showcase contracts

Build your own eCommerce Dental Distribution Company. USA global dental manufacturer is in search of entrepreneurial dental professionals interested in developing a profitable eCommerce distribution business supported by multiple dental manufacturer product lines.

We are interested in hearing from current or former Dental professionals (dentists preferred) with a thorough understanding of the dental industry, various dental procedures and products. The company is looking to identify five individuals, one in each of the following countries: Germany, Spain, France, United Kingdom and Poland.

Responsibilities will include:
• Manage and promptly respond to all incoming inquiries (emails) through the eCommerce site.
• Store, process, and ship customer orders received through the eCommerce site.

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## Mini Lecture Programme
### BDIA Dental Showcase

**Thursday, 22 October**

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<td>Exploring New Horizons with myodontist (Theatre 2) Speaker: Steven McCarron</td>
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<tr>
<td>12:20–12:40</td>
<td>An Introduction to IAS Academy: The Inman Aligner and ClearSmile Aligner (Theatre 2) Speaker: Dr James Russell BDS</td>
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<tr>
<td>12:40–13:00</td>
<td>Attracting New Patients from Google and Websites (Theatre 3) Speaker: Krishan Joshi</td>
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<td>13:00–13:20</td>
<td>Completing and Maintaining the Surface Finish on Anterior Restorations (Theatre 3) Speaker: Thomas O'Connor</td>
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<tr>
<td>13:20–13:40</td>
<td>Attract More Private Patients &amp; Increase Profits. How to market your practice and guarantee results (Theatre 1) Speaker: Malcolm Counihan</td>
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<tr>
<td>14:00–14:40</td>
<td>Understanding On-line Patient Journeys (Theatre 3) Speaker: Nrazil Haque</td>
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<td>16:00–16:20</td>
<td>Quick Straight Smiles From Cfast and SmileTRU—Multiple Appliances, One Great System from The World’s Premier Cosmetic Orthodontic Provider (Theatre 1) Speaker: Dr David Bloom</td>
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<td>16:20–16:40</td>
<td>Ergonomic sitting in dental practice (Theatre 2) Speaker: Sari Hiruiko-Vars</td>
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<td>16:40–17:00</td>
<td>Preparing to sell your practice (Theatre 1) Speaker: Alison Oliver</td>
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<td>17:00–17:20</td>
<td>Dental Marketing &amp; Growth Strategies (Theatre 1) Speaker: John Christensen</td>
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<td>What is my practice worth? (Theatre 2) Speaker: Martyn Bradshaw</td>
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ADA CERP®
Continuing Education Recognition Program
Less complexity and more creativity with Essentia

As a family-owned Japanese company continuously improving its core competences and technologies, GC (Stand J5) strives to develop smart solutions for dentists’ daily challenges. This sometimes implies going against traditional concepts.

In this respect, the company has announced to reveal a daring new approach to aesthetic dental restorations with Essentia at this year’s BDIA Dental Showcase in Birmingham, which was developed together with a group of experts in aesthetics.

Once more, GC conquers new frontiers and is offering an innovative solution for daily challenges, which perfectly blends versatility, simplicity and aesthetics in a smart solution enabling dentists to just follow their intuition. Essentia is not just another solution—enabling dentists to cope best the natural enamel and dentin build-ups. Therefore, the two enamels and three dentins could be characterised as being light, medium or dark.

By combining enamel and dentins, four main combinations following the patient’s age (Young, Junior, Adult & Senior) will make the shade selection become easier and will be sufficient to form the basis of any restoration, at any age. Thus, four different compositions were used to give specific properties to each shade, each of it best suited to their respective use: while enamels will present a high polishability and glass retention, dentins display an amazing shade adaptation to the cavity and can be easily modelled.

The Universal shade will provide the best chameleon effect for mono-shade posterior restorations, and the Staining Liner with high opacity will offer an easy placement thanks to its injectable consistency. This makes Essentia a simple and reliable solution for all aesthetic restorations, and the perfect partner for dentists who are looking for a simplified, yet highly aesthetic system.

Certainly, this straightforward approach goes along with many advantages. Practitioners will primarily benefit from a simplified build-up process, allowing highly aesthetic restorations to be created in significantly less time, while patients will profit from a lasting gloss as well as a reduced risk of plaque accumulation and staining, thanks to the optimised composition of the enamel shades.

In addition, even dentists willing to give more detailed characterisation to their restorations are gaining from Essentia. The four dedicated modifiers have been developed to satisfy various demands, such as the desire for an opalescent halo on the incisal border, fissure staining or mimicking white spots.

By boldly reducing the complexity of conventional shade systems, Essentia brings restorative dentistry to its essence and opens the way to maximal creativity.

Glass Carbomers on display in Birmingham

Glass Carborner technology is the result of over a decade of scientific and clinical research from teams at Amsterdam University and Queen Mary College, London. In Birmingham, the products will be on display for visitors to see and discover at Stand B45.

According to GCP Glass Carborner represents a new generation restorative material developed from glass ionomers augmented by nano-fluorohydroxyapatite and silicone oil. This development provides enhanced remineralisation, hardness, flexural strength, reduced solubility properties coupled with excellent biocompatibility. GCP utilises biomimetic natural reverse-mineralisation processes to help rebuild the tooth to resemble its original structure. These are developed through mineral release from nano-sized particle fluoride-aluminium silicate glass supported by liquid silica to provide greater stability and resistance to solubility.

Additionally, the materials contain fluoride/hydroxyapatite crystals as seeds upon which calcium and phosphate ions can concentrate and reinforce the restoration over time.

GCP bonds directly to tooth structure, providing excellent marginal adaption, and is not sensitive to moisture. Its strength is optimised using light generated thermocure to accelerate the crosslinking of the polymer chains. The use of GCP Gloss (liquid silica) prevents desiccation during curing and also to prevent adhesion to instruments, matrices and gloved fingers.

Glass Carbons come in pre-dosed capsules and are available in a number of formulations and shades for different restorative applications including GCP Glass Fill for permanent restoration of molar teeth and core build-up, GCP Glass Seal for effective fissure sealing, GCP Glass Crown Cement for direct fusion to both prep and crown, as well as GCP Glass Bridge Cement similar to Crown cement but with extended working time.

GCP products are available from all major UK dental distributors. Further information is available online at www.gcp-dental.com.
Aesthetics brought back to the essentials

Essentia™ from GC
Open the door to simplification
Follow your intuition
Data security: How not to become the next Ashley Madison

By Naz Haque, UK

At the heart of the relationship between a dentist and a patient lies trust and respect. Unless you have been hiding under a rock, I am sure you have heard of the Data Protection Act (DPA) 1998 and patient confidentiality, both of which exist to support these relationships. Recent events, such as the Sony or, more currently, the Ashley Madison breach, have brought to public awareness the importance of securing one’s data.

Data security and governance is a very tricky area. I must make it clear I am not a lawyer, and practices should make their own decisions about specific aspects of Care Quality Commission (CQC) compliance. I am a highly experienced information technology professional with a good understanding of data protection and other relevant legislation. All interpretations provided here are my own.

Even if a dental practice has not embraced the digital age and all records and correspondence are in paper and hand-based, the practice still has a number of responsibilities regarding data security. As dental practices collect patient details, they must register with the Information Commissioner’s Office (ICO). Dental records must be stored safely and securely for a number of years (up to six years for the National Health Service; NHS) and kept for a maximum of 30 years (Department of Health).

Aside from the General Dental Council, NHS and CQC governing bodies in the UK, there are a number of legislative acts, the DPA being the most well known, that require dental record storage, such as the Consumer Protection Act 1987, under which an action could arise for a defective product. Even if a dental practice has not registered with the ICO, it could make you breach data security rules. For example, if you are using one of the popular US-based organisations for e-mail, such as AOL, Hotmail and Gmail, and have emails with your patients via this e-mail platform, you have to consider where the e-mails are being stored, most likely on servers outside the UK.

The next area of concern then is movement of data. This can be via e-mail online referral tools, feedback platforms or devices, and your website. E-mail is not a secure medium, and communication with patients about their medical history or medical circumstances using this platform raises potential issues. The service provider you use for your e-mail could also be inadvertently making you breach data security rules. For example, if you are using one of the popular US-based organisations for e-mail, such as AOL, Hotmail and Gmail, and have e-mails with your patients via this e-mail platform, you have to consider where the e-mails are being stored, most likely on servers outside the UK.

The DPA states that “personal data shall not be transferred to a country or territory outside the EEA [European Economic Area] unless that country or territory ensures an adequate level of protection for the rights and freedoms of data subjects in relation to the processing of personal data.” As a dental practice, you should consider if you are using a commercial e-mail provider to liaise with your patients, and determine whether your website communication tools and feedback portals are compliant and if not ensure your designated data policy controller addresses this as a priority.

The ICO can issue monetary penalty notices, requiring organisations to pay up to £500,000 for serious breaches of the DPA occurring on or after 6 April 2010. If you have reservations, there are a number of solutions to protect practices from these risks. Clients at Dental Focus expect us to take care of online compliance and provide guidance on keeping up-to-date and resolving these issues. Make sure your data is secured and protected before it is too late.
Avoiding common problems in tooth extractions

By Dr Kamis Gaballah, UAE

The last two decades have seen significant advances in restorative techniques and materials for dentistry. The latter, along with community-based preventive measures that aim to reduce the incidence of caries, have resulted in many patients living with functional teeth for a longer period. Yet, extraction of teeth forms the considerable bulk of the workload in oral surgeries owing to several factors, including the late presentation of patients with advanced dental disease, the presence of symptomatic impacted teeth, such as third molars, and the need to extract teeth for orthodontic or orthognathic treatment.

The extraction of teeth varies greatly based on the type of patient who is undergoing the procedure. For example, elderly patients with significant co-morbidities and on a complex combination of medications as compared with young healthy individuals render the procedure complicated and require much more preparation with modiﬁcations during and after patient management. Additionally, extractions can range from a single, fully erupted tooth with a favourable morphology to multiple misaligned, impacted teeth or teeth with challenging morphology. Local anatomy, such as tooth proximity to the nerve, maxillary sinus and tuberosity, also plays a significant role. These variations usually dictate who is to perform the extraction, as many general practitioners deal with less complicated cases of dental extraction in individuals regarded as healthy patients and may not feel comfortable operating on medically complex patients.

Complex extraction cases have been linked to a higher rate of post-operative complications, therefore, a cautious and systematic approach should be adopted that includes a detailed preoperative assessment to predict the potential difficulties that might arise during extraction. The documentation of all complicating risk factors along with their potential postoperative morbidities is crucial and should be included in the informed consent. In the following article, other useful tips will be provided that are not usually included in traditional textbooks or lecture notes to help general practitioners to perform safer extractions.

During clinical examination, it has been proven useful to observe the patient’s build. Tall and muscular individuals tend to have a long ramus with a higher mandibular foramen, and thus increases the possibility of failure of the inferior dental nerve block procedure of the former is not taken into account when determining the height of the injection site. This can be aided by tracing the inferior dental canal (IDC) to the mandibular foramen in the preoperative panoramic radiograph. The teeth of such individuals may also have longer and more curved roots and be embedded in highly dense, compact alveolar bone, and thus sectioning of the teeth may be required to ease the resistance. Racial differences should also be taken into account, as extractions of teeth from individuals of Afro-Caribbean descent tend to be more challenging owing to the hardness of their bone and divergence of roots in their molars.

The resistance of hard tissue should be expected, particularly if maxillary second and third molars are being extracted, as the potential for fracture of both the buccal plate and the tuberosity is relatively common when excessive force is applied with dental forceps. Fracture of the tuberosity may produce irregular sharp bony boundaries, significant soft-tissue laceration and potentially an oroantral fistula. If such risk factors are identified, the surgery should be planned accordingly taking into account the potential for a significantly higher rate of complications.

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as the amount of bone removal required is minimal, thus minimising the postoperative morbidity. However, it cannot be performed in all cases in which the LM3 is close to the IDC and is certainly contraindicated when the LM3 is decayed or its roots are associated with a pathology and should be considered with caution in severely inclined mesio-angular and horizontal impaction cases. The author does not recommend dentoalveolar extraction or retraction of the lingual flap with the intention of protecting the lingual nerve, as this may increase the risk of damaging the lingual nerve. It should be emphasised that incision may not extend beyond the distobuccal aspect of the tooth.

The other important aspect of the dental extraction procedure is the future replacement of the tooth to be extracted. The current trend of tooth replacement for both functional and aesthetic reasons is the placement of dental implants. The success of this treatment largely depends on the availability of healthy bone in sufficient volume. Therefore, it is crucial for the dental practitioner not to compromise the alveolar bone during extraction of the teeth. Changes in the alveolar bone ridge after an extraction are inevitable. After all dental extractions, bone height and width always undergo dimensional changes. Bone does not regenerate above the level of the alveolar crest, that is, its height will not increase during healing. The buccal plate tends to shrink, shifting the crest of the alveolar bone lingually, and often forms a concavity. Such changes are proportional to the amount of trauma to the soft and hard tissue during the extraction.

An additional unfavourable change that may take place is the slow remodelling of the bone formed to fill up the extraction socket owing to lack of functional stimulation. The presence of poorly remodelled alveolar bone may compromise the stability and function of the future implant. Furthermore, studies show that the stripping and elevation of mucoperiosteal tissue produce a higher number of osteoclasts with-in the alveolar ridge and hence greater reabsorption and shrinkage are seen after the classical surgical or the traumatic extraction of teeth.

The preservation of alveolar bone for future implant placement may be achieved by avoiding unnecessary bone removal and stripping of the periosteum during surgery as well as performing a surgical alveolar bone preservation procedure. Bone removal can be largely avoided by performing through modification of the traditional extraction technique. The first such modification is the use of dental periotomes or luxatomes to gently strip the periosteal and luxatomes to gently strip the periosteal ligament fibres and widen the socket without causing cracks or fracture of the cortical plates, as commonly encountered when using dental forceps or the bulky elevators. The use of such gentle instruments also eliminates the need for elevation of mucoperiosteal tissue. However, it should be noted that the safe use of these instruments requires adequate training and should be encouraged during undergraduate clinics. Collagen stabilisation through light packing of the socket with collagen sponges may help to minimise clot dislodgement, as well as accelerate the healing process and bone regeneration. The second strategy is the alveolar bone preservation procedure. This includes packing the extraction socket with different fillers, such as osteoinductive or osteoconductive materials, like autogenous, natural or synthetic bone grafting materials that support the alveolar socket walls, thus preventing their collapse and shrinkage. It should be noted that this intervention can only slow down the post-extraction changes to improve the success of the dental implant, but cannot stop them altogether.

Finally, post-extraction care should include an explanation of the healing process and potential symptoms encountered after such procedures. The prescription of medications should be limited to non-steroidal anti-inflammatory drugs in most cases and imprudent use of antibiotics or socket dressing should be avoided.
Mandibular body reconstruction with a 3-D printed implant

By Dr Saeid Kazemi, Reza Kazemi, Sita Rami Reddy Jonnala & Dr Ramin S. Khanjani, Sweden

Nowadays, no aspect of human life seems to have been left untouched by the ever-expanding digital technology. Particularly in scientific fields, digitalisation has working wonders during the past few years, to the degree that it is even difficult to imagine going back to the ordeal of analogue methods and putting up with their vagaries. A remarkable blessing of digital technology, among others, is the exceptional precision and high control over the measurements, never possible to obtain through any of the preceding methods. There is no surprise then that it has the strongest appeal to the fields of knowledge and practice wherein precision is amongst the most critical element of success.

Hot spot for digital technology

With a lot of technical sensitivity at its heart, the dentistry can easily be viewed as a hot spot for implementing digital technology to achieve the most wished precision. Indeed, the digital technology has already gained a stable foothold in dentistry and there is an ongoing shift towards embracing digital systems into the dental practice. Predictably, the majority of the advertised technologies and services are geared towards routine dental procedures. On the other hand, the most significant advancements have been witnessed in an area which falls only within the experience of specialists, it is the domain of maxillofacial surgery where tailoring the treatment plan to the unique conditions of the patient is the key to success. Here the state-of-the-art digital technology comes in handy to fully customise the treatment by taking the slightest details into consideration and reflecting that into the surgical and restorative solutions.

Though the successful reconstruction of any human structure is justifiably a challenge, the stakes are even higher when the oral and maxillofacial area is affected. In this latter case, care must be taken to retrieve function in conjunction with restoring aesthetics. Oftentimes, even the second objective might take precedence. As such, the significance of precision and adaptability to the existing structures for the maxillofacial implants cannot be overemphasised. Fortunately, with the advent of 3-D digital designing and additive manufacturing a fully satisfactory treatment is no more a remote possibility.

The virtual environment of 3-D software accommodates full inspection of the surgical area from multiple angles. It also facilitates designing and adjustment of the form of the future implant with much ease and with respect to topography of the surrounding structures. Thanks to the available technology and material, now it is possible to 3-D print such intricate designs with above-standard accuracy and minimum technical glitch. The result is the highest fit of precision always craved for by maxillofacial surgeons to complement their skilful incisions.

Case presentation

Since its inception, DRSK Company has been committed to explore potentials for incorporation of the digital and computer science into the dental field by devising innovative solutions. With 3-D services being a major activity of DRSK, the company has been approached for 3-D designing the maxillofacial implants of different kinds and successfully accomplished them. All these 3-D designed implants are highly customised and feature great accuracy and therefore satisfy both surgical and mechanical standards.

Patient case

One such recently carried out project that merits further elaboration is the design and manufacture of one-of-a-kind mandibular implant for reconstructing the missing mandible body (Fig. 2). The patient, a young man, had lost the entire mandible except for the rami after being severely injured in a blast. Over the years, the patient had undergone several surgeries with little improvements achieved. In point of fact, one consequence of those surgeries was the formation of fibrous scar tissues which, as will be explained in the following, exacerbated the situation and restricted the chance for an effective treatment.

At the time the surgical team contacted DRSK, the patient had already received a graft taken from his fibula. Owing to the extent of structure loss, the graft alone failed to yield the anticipated results. Needless to say, the ultimate goal of the treatment was to improve the aesthetics and retrieve the function of the reconstructed jaw by a prosthetic treatment and giving the patient a chance to experience an almost normal mastication once more. However, the form and size of the grafted bone could not provide the required support for prosthetic structures such as dental fixtures.

Eventually, the surgical team decided to seek assistance from DRSK and use its 3-D services expertise to design and manufacture an ad hoc mandibular implant that fully complies with the patient's unfavourable conditions and enables the complementary prosthodontics...
treatment. The overall shape of the implant and its relation with other anatomic structures, including the grafted bone and the soft tissue were all fleshed out and requested by the surgical team. One stipulation of the surgical team was to keep the previously grafted fibula. They considered it as a safety measure in event of implant’s failure.

The design solution

One big challenge to carry out this particular project was to design the implant in such a way that it can be easily seated in the correct position. There were two major impediments to a one-piece implant solution. First of all, the implant was intended to be mounted over the remaining parts of the patient’s jaw, i.e. his two rami. To achieve the maximum anchorage from the rami, those parts of the implant connecting them were supposed to adapt to their external anatomy. Since the rami converge to the front, the same was expected from the corresponding implant design.

However, such designing choice would have made the matters complicated for surgical placement of the implant. What’s more, the fibrous tissues resulting from the previous surgeries have dramatically reduced the patient’s ability to open his mouth. Therefore, DRSK’s 3-D design team had to cross out the one-piece implant solution. Eventually by taking different limitations into account and after consulting with the surgical team and receiving their endorsement, it was decided to make the prosthesis in three pieces.

Each of the two larger left and right segments of the implant was designed to be placed and screwed individually over the corresponding rami(Fig. 3), while at the front they met and dovetailed into each other(Fig. 4). A third part then had to be placed over the two pieces at their interface, embrace both and hold them together securely(Figs. 5 & 6). This way the whole thing turned into a unified structure.

Excellent fit with 3-D designing

The success of the proposed design was to a large extent reliant on obtaining an excellent fit for each piece. This is the reason why the role of 3-D design and manufacture was so essential in this procedure. The parts of the right and left sections that meet the rami had to be exactly adapted to the form of their corresponding anatomic structures. Each of them had to be formed in such a way that can fold over the edges of the ramus and embrace it enough for a proper support using 3-D design as well.”

The prosthetic component

On the surgical team’s recommendation, the mandibular dentition included in the design of the middle section only comprised ten pieces, including incisors, canines and premolars on both sides(Fig. 7). Due to the size of third surgical piece and its function of uniting the other two sections, only incisors and canines are in contact with the interconnecting surface of the middle part. So when the middle prosthetic piece is seen independently, the premolar look unsupported in the manner of a cantilever bridge.

However, after insertion of this enfolding middle part over the overlapped arms of left and right pieces, the premolars become tightly in contact with left and right sections; this prevents any destructive lever function from taking place. Again such close contact has only been enabled by the accuracy of 3-D designing and the following 3-D print procedure.

The particular design of arms of left and right pieces, which collectively form the body of the mandible, is also worthy of note. These arms feature a 90 degree twist in the approximate area of molars. In this way they can adopt to both the thinner posterior part which is anchored over the ramus and the frontal part that required a broader width for carrying the teeth. Such twist also offered a solution for the relative lack of space in the posterior part of the mouth. This curve can as well bolster the physical resistance of the mandibular implant to the mechanical pressures.

3-D printing

As the designing procedure finished, the designed implant had to be manufactured and delivered to the surgical team. All three pieces were 3-D printed in Titanium Grade 5 using EBM technology. Also before installing the implant, patient’s facial skeleton needed to be reproduced in a plastic material it was 3-D printed by means of SLS technology. This replica was produced in order to give the surgeon a better idea of the surgical site and therefore facilitate the surgical process.

After the healing period, the time comes for insertion of the prosthetic component. At this stage the surgical middle part will be unscrewed and removed(Fig. 8) and the prosthetic middle section, carrying the teeth, will be inserted(Fig. 9) and fixed in place(Fig. 8 & 9). After checking the occlusion the patient’s bite is to be registered. The sizes of the teeth have to be adjusted accordingly. As the next step, a layer of porcelain should be added to the teeth to finalise the prosthetic phase and thereby the treatment process.

Summary

In brief the 3-D design has paved the way for devising unnethodic, novel surgical and prosthodontics solutions, as exemplified by the case presented in this article. Such alternative solutions could not be achieved through traditional technology with the same level of accuracy, which is essential for achieving the desired outcome. The 3-D design and 3-D printing therefore have infinitely widened the scope of maxillofacial surgeries by expanding and improving the potentials for customisation. Hence, it is now of utmost importance for maxillofacial surgeons to get further familiar with areas of application of these empowering tools and learn about opportunities for reuniting its assistance.

Dr Saeid Kazemi is the CEO of DRSK, a Swedish company specialised in implantology and 3-D services: He can be contacted at drsk@drsk.com.
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Formnext is rising high

Five months ahead of the premiere, formnext has already secured the participation of exhibitors from among the world’s leading manufacturers in additive technologies and international OEMs in tool-making, such as Audi and Lamy. From November 17 to 20, 2015, the international tool-making and additive technologies exhibition and conference taking place in Frankfurt/Main —formnext powered by tct—will uncover new potential in the entire manufacturing process, from development to production.

According to Thoma, this very positive development is down to the innovative exhibition concept and the intensive exchange and communication with the industry. “We are receiving great support from our exhibitors at home and abroad and from several associations and institutions. The decision to establish in Frankfurt a new international platform for the product development up to the production process was absolutely right.”

Formnext will showcase the latest technologies in interaction with conventional procedures, focusing thereby on tool and form-making. Internationally renowned companies in the 3-D printing sector have already registered as exhibitors, such as Alphacam, Arburg, Arcam, Concept Laser, EOS, EnvisionTEC, Materialise, Prodways, Realizer, Renishaw, Ricoh, Sisma, SLA, and Stratasys.

“Tool and form-making is also already a strong and prominent feature at formnext 2015. In a special show, Audi Toolmaking will present its expertise as a global leader and provide an insight into the future of automobile manufacturing. Lamy, a producer of writing instruments, will show its tool-making precisely what makes it the German market leader. Numerous other tool and form-making companies from Germany and other countries will also present their range of products and services.

In addition, renowned and innovative companies and organizations from the fields of research, materials, mechanical engineering, measurement technology, prototype construction, services, further processing, and accessories have confirmed their participation as exhibitors.

Formnext already has a very strong heartbeat,” says Johann Thoma, president of Mesago Messe Frankfurt, the organizer of formnext.

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Formnext will use the interaction of additive and conventional procedures to showcase the next generation of product development and manufacturing. The world’s leading companies in additive manufacturing and highly specialized tool-making will show you their expertise at formnext powered by tct. Discover how additive technologies can be intelligently combined with conventional procedures in product development and production, and how you can use innovative processes to reduce your time to market even further. New potential across the entire manufacturing process is waiting to be discovered by you. We are looking forward to seeing you!

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