Oral cancer thrives based on lifestyle

Cases have almost doubled throughout the population since the late 1990s

By DTI

LONDON, UK: Lifestyle habits like smoking, drinking alcohol or an unbalanced diet, in addition to human papillomavirus infections, appear to have resulted in a surge of oral cancer in the UK. New data released by Cancer Research UK in London on the occasion of Mouth Cancer Action Month in November, show that the incidence of the disease has increased significantly throughout the population over the last 20 years.

Cases have almost doubled since the late 1990s, from eight to 13 cases per 100,000 people.

The highest increase was observed in women, among whom the incidence of oral cancer has soared through all age groups in the last two decades by a staggering 71 per cent. In comparison, the incidence rate of breast cancer, the most common cancer in British women, increased by 10 to 20 per cent in the same period. Oral cancer is almost seven times as high in women over 50, in whom the organisation reported 2,200 cases in 2015, compared with 300 cases in women under 50.

A similar situation was found among men. Oral cancer rates climbed by 54 per cent to 4,400 reported cases in men under 50 and by 67 per cent to 640 reported cases in men over 50.

Men currently account for two-thirds of all reported oral cancer cases in the UK.

“It’s worrying that oral cancer has become more common,” said Jessica Kirby, Cancer Research UK’s Senior Health Information Manager. “Healthy lifestyles can help reduce the risk of developing the disease in the first place. Not smoking, drinking less alcohol and eating plenty of fruit and vegetables can all help to cut our risk of mouth cancer.”

In view of the figures, Cancer Research UK has now called on local councillors and the public to protect vital Stop Smoking Services, which are under threat owing to budget cuts. It has also developed an oral cancer toolkit in cooperation with the British Dental Association (BDA) to help general medical practitioners, dentists, nurses and hygienists spot early signs of the disease and refer suspected cases sooner.

According to research, survival rates can be improved significantly if the disease is identified early.

“Early detection is key, and a check-up can mean the difference between a 90 and 50 per cent survival rate,” commented Dr Russ Ladwa, Chair of the Health and Science Committee at the BDA.

Smoking has been identified as the greatest avoidable risk factor for oral cancer, linked to an estimated 65 per cent of cases, in addition to drinking alcohol and following a diet low in fruit and vegetables. A recent study conducted by University of Derby researchers also confirmed a link between these lifestyle choices and a higher risk of developing head and neck cancer from human papillomavirus infections.

Prescriptions of antibiotics decrease

By DTI

LONDON, UK: In line with general medical practices and hospitals, dental practices in the UK for the first time prescribed fewer antibiotics last year. According to a new report issued by Public Health England (PHE) as part of the English surveillance programme for antimicrobial utilisation and resistance (ESPAUR), dentists gave out approximately 7 per cent less of the two most prescribed antibiotics, amoxicillin and metronidazole, in 2015 than in 2014.

Across all health sectors, 2.2 million fewer antibiotic prescriptions were dispensed in the community last year. The overall consumption of antibiotics in 2015 was 21.8 defined daily dose per 1,000 inhabitants per day, a 4.3 per cent decrease from the 22.9 DDD recorded by PHE in the previous year, the report states.

Dentists are currently responsible for 5 per cent of antibiotic prescriptions, with the overall majority given out by general medical practitioners and hospitals.

The figures are relevant in view of the roll out of a new dental toolkit developed by the dental subgroup of ESPAUR in collaboration with the Faculty of General Dental Practice (FGDP) and the British Dental Association (BDA). It includes an easy self-audit tool and patient-facing posters and leaflets to support effective antimicrobial stewardship in dentistry.

“Dentists have a vital role to play in keeping antibiotics working. Audit helps us fulfil our professional responsibility only to prescribe antibiotics when it is appropriate to do so, and the new tool is an easy way to measure our practice against clinical guidance, and identify, implement and sustain any changes we need to put in place,” FGDP Dean Dr Mick Horton said.

Dentists are able to download the free toolkit from both the BDA and FGDP websites.

Despite the drop in prescriptions, resistance to antibiotics is further on the rise across all sectors in the UK. The proportion of bloodstream infections resistant to piperacillin/tazobactam, the most frequently used combination antibiotic for the treatment of sepsis, for example, has increased by almost 50 per cent over the last four years.

The government has vowed to reduce inappropriate prescribing by 50 per cent by 2020 to tackle the problem.
**Combat dental anxiety in children**

By DTI

Sheffield, UK: For sufferers of dental anxiety, the fear of dental procedures and check-ups can often lead to neglect of oral care, poorer dental health, and a sense of depression or shame. A new study conducted by researchers at the University of Sheffield has looked into the efficacy of cognitive behavioural therapy (CBT) as a means of addressing dental anxiety in children, one of whom experience such fear, and achieved good results.

In the study, the researchers aimed to develop a guided self-help CBT resource to reduce dental anxiety in children. This fear can prevent children from receiving important dental care, so understanding the root of the issue is an important step in seeking to address the problem. Interestingly, research recently conducted in the US has found that dental anxiety may not only be caused by environmental factors, but also be a result of genetic influences. Irrespective of the aetiology, reducing the fear of dental visits in children is a valuable corrective action that can ideally lead to lifelong healthy dental habits.

In the first phase of the study, a qualitative approach was utilised to guide the development of the resource. The second phase involved children between the ages of 9 and 16 who suffered from dental anxiety being asked to trial the CBT resource. Available in hard copy or online, the CBT resource allowed a variety of techniques and tools to be employed by the children. These included squeezing a stress ball, writing a message to the dentist and choosing a small reward. The children’s relative levels of dental anxiety were assessed through the completion of questionnaires prior to and after using the resource.

In addition, the feasibility of this resource for children was analysed through a combination of interviews and focus groups with children, parents and caregivers, as well as dental professionals. The researchers found that the use of the CBT resource resulted in 60% per cent of the children feeling less worried about visiting the dentist. Additionally, the participating children were found to have a corresponding increase in health-related quality of life after using their CBT resource. The study findings will be employed in the development of a more definitive trial to investigate the treatment success and cost-effectiveness of this resource.

The study, titled “Development and testing of a cognitive behavioural therapy resource for children’s dental anxiety”, was published online on 1 November in *JDR Clinical and Translational Research*.

**New Exeter dental education facility**

By DTI

Exeter, UK: Replacing an old dental training facility at University Hospital, the new Dental Education Facility was opened last week in Exeter. In addition to the training of Plymouth University students in the five-year dental and three-year dental therapy and hygiene undergraduate programmes, it will offer basic dental procedures, like filling, extraction and root canal therapy as well as periodontal treatment, for local NHS patients.

The facility in Exeter will be run and managed by the Peninsula Dental Social Enterprise, a non-profit organisation that aims to improve oral health across the South West.

With a capacity upgrade, it will offer 42 chairs, as well as a 16-chair Simulated Dental Learning Environment, where students can test and improve their clinical skills on smart dummies.

According to university officials, it will also provide a suite of postgraduate programmes, allowing dentists and other dental health professionals from the area to further their careers through education.

The opening was attended by Chief Dental Officer for England Dr Sara Hurley, who said that the facility is the spirit of best practice in care, learning and social enterprise. “Recognising a need to improve access, the Exeter Dental Education Facility offers not only a place for excellent patient care but an outstanding environment for the high quality of training of the next generation of dental professionals,” she said.

Exeter Member of Parliament Ben Bradshaw added: “It was great to see the students learning in such state of the art facilities and the local patients benefiting from their care. The dental school has been a valuable asset for Exeter in recent years and it is wonderful to see it in such a fantastic, brand new setting.”

The dental training facility in Exeter originally opened in 2008 and has provided NHS dental care by students under supervision of qualified dental professionals to more than 18,000 people across Devon and Cornwall, according to Peninsula figures. There are currently four dental education facilities run by the organisation in the South West, with the other three based in Plymouth and Truro.
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Society for Women in Dentistry launched

By DTI

LONDON, UK: It is estimated that by 2020 over half of dentists in the UK will be women. In order to address particular challenges related to the feminisation of the workforce, as well as to encourage and inspire women to achieve their full potential in the field now and in the future, the Society for Women in Dentistry was officially launched this month.

The introduction event in London saw presentations by outgoing Executive Dean of King’s College London Dental Institute Prof. Dianne Bekow; British Dental Association executive member Dr Alison Lockyer; and General Dental Council adviser and practice owner Dr Sana Movahedi, each of them speaking about their own careers in dentistry and the current issues women in the field face.

Open to dental students and professionals across all universities and in the wider impact of the dental profession.

New perspectives at Belfast Oral Health Conference

By DTI

BELFAST, UK: Under the theme of “Perspectives”, members of the British Society of Dental Hygiene and Therapy (BSDHT) recently met at Belfast Waterfront convention centre to discuss how oral health issues affect overall health. One of the largest gatherings of dental care providers in the UK, this year’s Oral Health Conference aimed to look beyond the mouth in order to gain fresh perspectives on sessions.

The congress was supported by a major number of industry competitors, including Colgate-Palmolive, CURAPROX, Dentsply Sirona and GC. Over 300 members and interested dental professionals took part in the event. According to BSDHT President Michaela O’Neill, it offers a valuable opportunity for members to come together and share ideas, as well as advance their approach to their profession.

“I want our members to go home thinking that they have new perspectives and connections which will help take them even further in their careers,” she continued.

The BSDHT currently represents over 4,000 members across the UK. Its main conference is held biennially, and the last two were held in Liverpool.

2016 Young Dentist Endodontic Award

By DTI

LONDON, UK: Described as a prize to recognise future stars in dentistry, the Young Dentist Endodontic Award has been given since 2012 to young clinicians who have performed outstanding clinical work. This year, the jury recognised Dr Satnam Singh Virdee from Cardiff for his treatment of a case of chronic periapical periodontitis due to an infected root canal in a 36-year-old male patient.

The 26-year-old dental core trainee was awarded first prize, competing against fellow clinicians Dr David Bretton from Harley Street Centre for Endodontics and Dr Ian Dunn, among others.

“His was the most technically challenging case,” explained Dr Julian Webber, dentist at the Harley Street Centre for Endodontics in London and founder of the award. “The tooth had been treated before, but poorly, and the canals were curved with apices close to the maxillary sinus.”

“Together and share ideas, as well as advance their approach to ther Apical therapy was critical to the success of the treatment because it is so technically challenging and mindful of the adjacent窦,” said Webber.

“The correct technique, we had to keep reminding ourselves that these young dentists were effectively still in training. They are rising stars in the field of endodontics and a credit to their teaching hospitals and tutors,” Webber said.

This year marked the fifth time that the award was given to young professionals in the field of endodontics. Those who would like to compete will have their chance when the next competition begins in spring next year. Further details will be announced through the British Endodontic Society website.
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Foreign studies show e-cigarettes harmful to oral health

By DTI

ROCHESTER, USA/QUEBEC CITY, Canada: In the Western world, electronic cigarettes continue to grow in popularity among young adults and current and former smokers because they are often perceived as a healthier alternative to conventional cigarettes. However, two recent studies conducted by scientists in the US and Canada have found that regular exposure to e-cigarette vapours causes damage to the gingival tissue, which may lead to infection, inflammation and periodontal disease.

Both studies investigated the effect of e-cigarettes on oral health on cellular and molecular levels through in vitro experiments. The team of Prof. Mahmoud Rouabhia from the Faculty of Dentistry at Université Laval in Quebec City exposed gingival epithelial cells to e-cigarette vapour, finding that a large number of these cells died within a few days. “Mouth epithelium is the body’s first line of defense against microbial infection,” Rouabhia explained. “This epithelium protects us against several microorganisms living in our mouths.”

To simulate what happens in a person’s mouth while inhaling, the Canadian researchers placed human epithelial cells into a small chamber containing a saliva-like liquid. E-cigarette vapor was pumped into the chamber at a rate of two 5-second “inhalations” per minute for 15 minutes a day. Observations under the microscope showed that the percentage of dead or dying cells, which is about 2 per cent in unexposed cell cultures, rose to 18, 40 and 53 per cent after one, two and three days of exposure to e-cigarette vapour, respectively.

“Contrary to what one might think, e-cigarette vapour isn’t just water,” Rouabhia stated. “Although it doesn’t contain tar compounds like regular cigarette smoke, it exposes mouth tissues and the respiratory tract to compounds produced by heating the vegetable glycerine, propylene glycol, and nicotine aromas in e-cigarette liquid.”

The cumulative effects of this cell damage have not yet been documented, but they are worrying, according to Rouabhia. “Damage to the defensive barrier in the mouth can increase the risk of infection, inflammation, and gum disease. Over the longer term, it may also increase the risk of cancer. This is what we will be investigating in the future,” he concluded.

Researchers at the University of Rochester Medical Center in the US came to similar conclusions. Dr Irfan Rahman, Professor of Environmental Medicine at the university’s School of Medicine and Dentistry, and his colleagues exposed cell cultures of human gingival epithelial cells and periodontal ligament fibroblasts to e-cigarette vapours. “We showed that when the vapours from an e-cigarette are burned, it causes cells to release inflammatory proteins, which in turn aggravate stress within cells, resulting in damage that could lead to various oral diseases,” he explained.

Most e-cigarettes feature a battery, a heating device and a cartridge to hold liquid, which typically contains nicotine, flavourings and other chemicals. The US researchers found that the flavouring chemicals negatively affect gingival cells too. “We learned that the flavourings—some more than others—made the damage to the cells even worse,” said study author Fawad Javed, a postdoctoral resident at Eastman Institute for Oral Health, part of the university’s medical centre.
“Going green is our business, not somebody else’s, but everybody’s responsibility”

An interview with Dr Claudio Pinheiro Fernandes, Brazil

By Kristin Hübner, DTI

Measures to reduce waste and pollution and to conserve natural resources such as water and energy already play a major role in many areas of daily life. Likewise, acting in an environmentally friendly manner is becoming increasingly important in dentistry as well. Dental Tribune spoke with Dr Claudio Pinheiro Fernandes, head of the Sustainable Dentistry Centre at Fluminense Federal University in Nova Friburgo in Brazil and consultant to the FDI World Dental Federation’s Science Committee, about sustainability principles in dentistry, the preservation of natural resources and the economic dynamics of going green.

Dental Tribune: Being environmentally friendly is becoming increasingly important in everyday life. When did this topic first gain momentum in dentistry?

Dr Claudio Pinheiro Fernandes: Sustainability is relevant to everyone and we face this challenge every day. Every single newspaper that one reads includes something about climate change or sustainable development. It is the responsibility of dentistry too to become involved as a profession to pursue sustainability in the field of oral health for the good of society.

The dental profession is being challenged by the increasing demand for better oral health care for more people in more countries than ever. At the same time, we have the challenge of needing to do more with less resources. In this context, the question of how exactly we are doing this arises.

What can dentists do and what defines a sustainable practice?

As dentists, we have to realise that there are certain aspects and areas of our work that can be organised better. From a procedural point of view and concerning the equipment used, there are certain sustainability principles to consider. Take a simple example: when one buys a refrigerator or an air conditioner today, one looks for energy efficiency labels that indicate the most efficient device in terms of its energy use. This means that it is good both for one’s pocket, being cheaper to run, and for the environment, since it needs less energy. Why do we not have this kind of labelling in dental equipment? We could introduce energy-efficient dental equipment, with labels indicating that results in greater sustainability of products and processes. This is just one example that serves to demonstrate that there are many more efficient means of manufacture. Certainly, digital dentistry is one of those areas of increasing technology use that results in greater sustainability. Science, technology and innovation play a key role in most areas of business. Improvements in efficiency, accessibility and cost-effectiveness of products and processes may allow fullfilment of global need in a more sustainable way. Furthermore, dental research needs to be directed towards improving sustainability in dentistry.

Dentistry may be considered a very sustainable profession. How difficult is it to change the predominant mindset?

I think that the most important thing is education. We need to include education on sustainable development in undergraduate programmes and in continuing education programmes. That way, new and experienced dentists alike will learn how to actually practise environmentally friendly dentistry. The national dental association too can do a great deal to increase awareness and promote sustainable development. A good example is the Norwegian Dental Association, which has decided to include sustainability aspects of dentistry in its agenda.

What is the situation right now? Is the topic covered in the curriculum at all?

There is a great deal going on right now. I would say that we are in the moment of great activity. For example, the International Organization for Standardization has developed very good materials for action. There is also a United Nations Educational, Scientific and Cultural Organization platform for integrating education on sustainable development. It is called Education for Sustainable Development. In addition, it should be noted that many universities are already going green today. So, there is progress.

The federal government and many businesses are actively promoting their efforts towards making sustainability a part of their business strategy. How much of this is happening in your country? Ways for private dental practices to achieve sustainability?

We are doing that already. One way or another, people are coming to realise that going green is our business, but nobody else’s, but everybody’s responsibility. We as dentists have to play our part as well. In addition to efficient equipment and waste management, we should consider the topic of recycling, particularly in light of all the products that we use in daily practice.

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Another thing to keep in mind is how much water we use. That is an extremely important issue in dentistry. A dentist uses eight times more water than the average person does—a large volume! Usually the equipment used in daily practice results in high consumption. For example, some brands of suction equipment use clean water to drive the suction mechanism. On average, they use 200 litres per hour and this water goes from the pumps directly to the drain. Of course, suction is important, but could we not apply different technologies to achieve the same results? Do we have to waste clean water for this?

For example, the International Organization for Standardization has decided to include sustainability aspects of dentistry in its agenda. How is it being achieved by the company. For example, the International Organization for Standardization has developed very good materials for action. There is also a United Nations Educational, Scientific and Cultural Organization platform for integrating education on sustainable development. It is called Education for Sustainable Development. In addition, it should be noted that many universities are already going green today. So, there is progress.

By utilising the environment in an intelligent, sustainable manner, we allow society to develop in a healthy way. We need to have jobs, we need to produce, but we can all do that in a responsible manner and at the same time sustain a good economy.

When it comes to food and clothing, an eco-friendly lifestyle is often even more expensive than the alternative. For dentists, is there an economic barrier to going green at all?

Yes, there are challenges regarding entry and investment is required because everything must be reoriented to the future. As with everything, it is very difficult to start all over again, but when attitudes change, when dentists actively decide to pursue sustainability, then they will start reviewing their own procedures and little by little implement changes that will lead to the fact that one actually starts to implement a sustainable approach, it becomes evident that energy and resources were wasted before—which is not a good business strategy. There will be a return on investment. One’s patients, one’s clients and the public will recognise one as an active member of a responsible society. It will take time and effort, but the dental profession will achieve this.

So in the future it could be a selling point for companies to identify themselves as “green”. Yes, this is already happening in many business areas, because the public is driving sustainability awareness by seeking more sustainable alternatives. As always, there may be some companies that already say that about themselves even if they have not achieved that yet. However, standards have already been established to determine whether certain things have been applied. Based on these indicators of sustainability, auditors and reviewers are able to evaluate objectively whether sustainability is being achieved by the company.

Of course, investment is required in the beginning. However, some business reports indicate that going green can save as much as 40 per cent of costs on water, energy and unnecessary product waste, which is a great deal of money. Many companies, big and small, are already considering it their corporate responsibility to act for the social and environmental good.

Thank you very much for the interview.
My complete conversion

London lingual orthodontics provider Dr Asif Chatoo describes his navigation of digital technology

Over the course of my digital conversion, I have tried several different systems, all of which have delivered important benefits. The system I have used most is one I completed the digital circle over the last two years is sure-smile (OraMetrix). It is a treatment management system and among its benefits is that I am able to provide a highly customised service in a shorter space of time, saving on average six months of treatment time per patient.

I have had a digital scanner for some time, but this month I acquired an updated 3Shape TRIOS scanner. It is extremely fast and allows my team to take completely accurate and detailed records of patients’ upper and lower arches. In the past, the process took half an hour, but now it is immediate.

Adult patients are particularly grateful not to have impressions taken, and the orthodontic nurses are delighted to avoid this most trying aspect of record-taking. It was invariably messy. Being impression-free has brought more value to the team than going paperless.

It goes without saying that a key benefit of digital technology is the integration of the orthodontic processes and records. For instance, a scan of the patient’s teeth can be superimposed on to a photograph, which I can in turn integrate with a grid. I can relate the tooth positions to facial planes and check that the dental midline is centrally located. I can show the patient his or her teeth and bite and I can provide him or her with a visual simulation of the difference that treatment will make. The patient can then ask questions. My vision for the finished result may not be the patient’s vision and being able to manipulate the outcome on screen means one can be absolutely sure the patient understands the treatment planning. The patient can influence the treatment if he or she wishes, and if he or she changes his or her mind towards the end, the technology allows for last-minute nuances.

In order to convey how this approach differs from other treatments on offer, I compare it to the difference between an off-the-peg suit and going to a tailor in Savile Row. Many of the patients I treat at my practice are referred by leading dentists. Their expectations are high. Sometimes orthodontic treatment is just one part of an interdisciplinary treatment that in its entirety will cost in excess of £20,000. Patients expect perfection—in so far as it is possible in an ageing dentition—and they expect a high level of service. Sure-smile allows me to deliver both. Rightly for a West End practice, many of the benefits of sure-smile relate to communication and the care of patients with high expectations, but there are also personal benefits for the clinician.

In my case, there is one that surpasses all others. Bending archwires at the end of treatment is almost always inevitable and it is an aspect I dread. Why am I so hung up on this? The reason is that, if one bends a wire on one tooth, one will affect all the other teeth. This will increase the chair-side time. The solution is the robotic wire bending that is central to sure-smile.

I aim to deliver several things to my patients: an aesthetic result, a functional occlusion and an occlusion that is comfortable at rest.

More than anything, I want them to be wowed by their experience. I believe sure-smile delivers that wow factor.

I have gone 360 degrees and am now fully digital, but this is only the first navigation of new and evolving technology. My orthodontic journey continues and I suspect a few more digital revolutions await.

Dr Asif Chatoo is a London-based orthodontist and a leading provider of invisible lingual treatments. He can be contacted at info@londonlingualbraces.com.

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“The question is: Are clinics going to allow time for change?”

An interview with dental hygienist-therapist Theodora Little, London

About six months ago, London-based dental hygienist-therapist Theodora Little spoke openly about an issue that many dental clinics are facing right now: how are dental hygienists able to undertake essential care and thorough oral hygiene instructions in 20- to 30-minute appointments? In an interview at the BDHA Dental Showcase in London this year, Theodora introduced to a new prevention concept, individual training of oral prophylaxis, that will empower patients to maintain their oral health and thereby ultimately prevent dental disease.

Dental Tribune: Theodora, you graduated from King’s College London in 2013 with a diploma in dental hygiene and therapy. Why did you see a need to speak up for a change in oral hygiene instructions among dental professionals?

Theodora Little: We all want to do the best for our patients, but unfortunately, owing to time constraints that we have implemented here in the UK, it is not possible to carry out effective and thorough oral hygiene alongside education. During my time at university, our oral hygiene instruction training was very theory-based, with a few representatives visiting to demonstrate and provide different products. Unfortunately, we did not receive any interactive practical training on brushing with an instructor, which was a shame. I learnt more about the different techniques that have been used and recommended over the past years. This is why individually trained oral prophylaxis, or the iTOP programme, has become more important than ever. iTOP involves touch to teach demonstrations with patients, alongside verbal and visual education on the techniques and products, all of which help motivate and empower patients to feel confident and positive about brushing.

Yes, because one goes back to the basics and prevention is, after all, the main priority. We do not want to be seen as contributors to this drill, fill and bill philosophy. iTOP combines relationship building through thorough communication and education, including touch to teach. If we can take dentistry back to the basic aspect of prevention based on this philosophy, then we can help prevent dental disease and empower our patients to then implement preventive measures on a daily basis at home.

Do dental practices really have the time to implement this plan?

In the UK, most dental hygienists have 20- to 30-minute appointments. I have worked to this pressured schedule in the past, so I understand how difficult it can be to educate, carry out thorough oral hygiene and answer any questions a patient may have. I was left feeling empty at the end of each day and questioned whether I was really helping and making a difference to my patients. I am now fortunate, as I work in a clinic where we have hourly appointments in order to provide a unique and tailored preventive service. Communication is key to successful education and oral hygiene; therefore, it should be a priority and hygiene should be given adequate time for delivery thereof. If one can educate the patient, prevention will follow and subsequent conveyor belt appointments will be eradicated. Unfortunately, many people do not like change, but it is sometimes necessary for long-term benefits.

A while ago, Chief Dental Officer for England Dr Sara Hurley said that one does not need to visit the dentist twice a year. What do you think about this?

As a hygienist-therapist from a prevention perspective, I prefer to see a patient on a regular basis. We are all human and it can be difficult sometimes with life’s twists and turns to continue with a daily habit. I find habits can easily be broken when something of greater importance pops up. Therefore, many patients need regular super-

“Do we not want to be seen as contributors to this drill, fill and bill philosophy.”

Theodora Little

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We all want to be seen as contributors to this drill, fill and bill philosophy.

TRENDS & APPLICATIONS

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“Every patient and his or her mouth is different, so one size does not fit all.”

will remain prevention, through education, training and motivation, and as a hygienist, this cannot be achieved with one appointment per year for many patients.

Could you tell us more about the state of oral health in the UK?

It certainly depends on the region and age group of patients one is treating. I have found that, since working in the Curaden clinic in London, I have treated more patients with tooth surface loss and recession rather than periodontal disease. This may be because of the age group, combined with the fact that they appear to be extremely health conscious. This, in turn, involves a very acidic diet, owing to the consumption of fruit on a regular basis in different forms, constant sipping when exercising and using many of the in products, but in the incorrect way, or perhaps using what is not right for them. Over-brushing with potentially abrasive whitening toothpaste can contribute too. Tooth surface loss can then lead to hypersensitivity, which can be unbearable for some patients. Therefore, we continue to proceed with iTOP, together with high-quality products, such as CURAPROX’s CS 5460 toothbrush.

Which do you recommend: dental floss or interdental brushes?

Every patient and his or her mouth is different, so one size does not fit all. I tailor recommendations based on the individual. Some patients may have larger interdental spaces and in general I would then recommend interdental brushes, as one can use theseatraumatically if the right size is selected and the correct technique has been demonstrated. Flossing can cause trauma if used incorrectly, with too hard to touch is needed. As with every dental aid, the technique, quality and results vary, with that aid and for that individual patient are of most importance. However, if my patients prefer one product over the other and refuse to use interdental brushes, for example, then I would rather have them using floss than nothing at all. Still, the important thing is taking the time to discuss the different products with the patient and their benefits and then demonstrate the technique through touch to teach. However, this is where we need time, and the question is are clinics going to allow time for change?

Thank you very much for the interview.
Pedonomics: lasers in paediatric dentistry

By Dr Immeet Madan, UAE

We live in an era in which time is the basis for many decisions: what saves time is what gets chosen. Introducing better technology helps to work with time economics in paediatric dentistry. The recent term coined for this perspective of expanded thinking is “Pedonomics”. Pedonomics refers to the impact of the changing world of paediatric dentistry in the dental practice.1

Time economics goes hand in hand with pedonomics. The selective niches of dentistry are expanding far more today than in the past years. Few reasons that account for this need of the level of advanced healthcare are as follows:

1. Some parents who have their children later in life are referred to as drone parents. These parents self-educate a lot via social networks and extensive internet research. With less inherent trust in healthcare providers, they generally form a strong opinion about the dental care of their children and are most demanding of their paediatric dentist.

2. This category of parents are often techno-savvy and are quite updated with latest technologies. They appreciate a “no pain, no drill, no memory” dentistry.

3. Caries rate in dentistry is ever-increasing, with a heightened frequency of cariogenic diet and a decline in caries prevention.

4. There are more and more general dentists that would “do the job” and only if it is mismanaged, would they refer the child to the specialist. Increased availability of advanced technology can put an end to this trial practice.

Lasers as game changers

Lasers are introduced as excellent instruments in everyday dentistry. However, the idea of dentistry is generally connected to discomfort and pain in children’s minds. Any treatment trend that can help out practice to remove this connection by the use of contemporary technologies can increase patient referrals and treatment acceptance.

Although the hand piece does remove the dental decay, it may also cause abrasion of the tooth structure and a significant amount of discomfort that may not be taken very well by the children. In addition, the vibration and noise of the drill could be unpleasant to young ears, thereby lasers can prove a better tool as they do overcome all these fears of drill dentistry.2 Additional benefits must far supersede the costs and investment when it comes to completing the laser requirements of any practice.

Marketing protocols help us to see a larger number of patients per day but to have these patients accept the proposed treatments better, it is advisable to introduce them tools that can truly help. As applicable in any field, an experience that exceeds the expectations will motivate the patients to keep appointments, accept recommended care and hence allow to build up positive clientele.

Laser indications in dentistry

Medicine began to integrate lasers in the mid-1970s for soft tissue procedures. The first laser specifically for dental use was a neodymium-doped yttrium aluminium garnet developed in 1987 and approved by the Food and Drug Administration in 1990.3

Benefits

- Less thermal necrosis of adjacent tissues is produced with lasers than with electrosurgical instruments.4
- Haemostasis can be obtained without the need for sutures in most cases.5
- Little or no local anaesthesia is required for most soft tissue treatments.6
- Reduced operator chair time has been observed when soft tissue procedures have been completed using lasers.
- Lasers feature decontaminating and bactericidal properties on tissues, requiring less prescriptions of antibiotics post operatively.8
- Lasers provide relief from pain and inflammation associated with aphthous ulcers and herpetic lesions without pharmacological intervention.9
- Erbium lasers can remove cavities effectively with minimal involvement of the surrounding tooth structure because caries-affected tissue has a higher water content than healthy tissue.7
- As erbium lasers have no direct contact with hard tissue, the vi- bratory effects of conventional high speed handpieces are eliminated, allowing tooth preparations to be comfortable. As a consequence, anxiety in both children and adolescents is reduced.3, 7–9

Lasers and profits in dentistry

Lasers allow the dental practice to balance well between business and dental practice. Offices that in corporate lasers in their practice have a unique psychological and promotional advantage over those who fail short to offer such services. Lasers are definitely the foundation of creating a referral-based practice.10

Benefits that add to the practice are always important, but how actually does one convince oneself to accept the resulting expenses for the practice. Usually, lasers are considered high investments and any high investment must prove reasonable enough to be accommodated in the practice. Return on investments with lasers can be easily pre-calculated. In general, laser treatments can cost 35 to 40 per cent more than the usual appliance. This calculation done for a return period of two to three years can yield on the investment.

Mathematics in pedonomics

The introduction of lasers into the practice should be made in an orderly and precalculated manner. Proper financial planning will help ensure the successful introduction of laser and help to yield its benefits better. Calculation of economics used in paediatric dentistry and thus making decisions in favour of economic benefits to the practice are the basis of pedonomics. The concept of pedonomics and the time-economics model are based upon the profitability per unit of chair time which is the most important factor in determining the financial future of the practice. Pedonomics work on the presumption that the profit matters, not the income.11

Laser costs

Cost is the primary determinant in any acquisition. In the most common manner, it is defined as the amount paid or charged for something. It is termed as price in the economic language. Another important factor here is the opportunity cost. It is the added cost of using resources (as for production or speculative investment) forms the difference between the actual value resulting of using this opportunity and that of its alternative.

Opportunity costs are a major determinant as it describes the following:

2. Costs incurred when not having the laser, which include: loss of

Table 1: Number of patients treated with laser vs. conventional approach.

<table>
<thead>
<tr>
<th>Other procedures</th>
<th>Laser Filling</th>
<th>Conventional Filling</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Laser Cosmodent</td>
<td>Cosmodent</td>
<td>2250</td>
</tr>
<tr>
<td>2 Laser Frenectomy</td>
<td>Frenectomy</td>
<td>2500</td>
</tr>
<tr>
<td>3 Laser Sealant</td>
<td>Sealant</td>
<td>550</td>
</tr>
<tr>
<td>4 Laser Pulpectomy</td>
<td>Pulpectomy</td>
<td>2000</td>
</tr>
</tbody>
</table>

Table 2: Cost comparison in UAE Dirhams between laser and conventional treatment.
income due to loss of high-end, cutting edge dentistry, loss of referrals.

The final decision to purchase is worked out after looking at both financial and the opportunity costs.24

Laser as a profit centre

There are many ways that can help us calculate the profits based on Laser procedures. In any private practice, time is money. This can be best determined on the basis of the average hourly income. There should be a certain specific amount that needs to be earned per hour that can keep the practice flourishing. Apart from this basic income, any additional ability to perform the procedures more efficiently means extra income. The average amount of one hour chair time should be able to yield approximately 100 to 150 US Dollars. This is not the fixed amount but an approximate average that can keep the practice on profitable ends.

The procedures that can be effectively and efficiently performed by using laser in the paediatric dental office are:

1. Restorative laser dentistry
2. Laser assisted endodontics
3. Frenectomy
4. Sealsants
5. Minor surgical procedures
6. Tooth desensitisation
7. Lingual frenum removal
8. Exposure of unerupted teeth
9. Tooth whitening
10. Treatment of orthodontic or drug-induced hypertrophy.

Return on Investment

Once the laser is bought, pedonomics suggests that there should be a fair return on the investment made. Just to break even, the income generated by laser must include covering the price of the laser, maintenance, supplies as well as an additional amount to cover the income lost from the money used to purchase the equipment and not otherwise generating its own income. The profit that exceeds the break-even point is called the return on investment (ROI).

Some of the items that should be included in ROI would entail the profit from the following:

1. Novelties of procedures with lasers.
2. Reduced out referrals, caused by the new laser procedures.
3. In-referrals due to the uniqueness of laser-assisted paediatric dentistry.

Tracking

To actually calculate the accurate financial return of introducing the laser to the practice, the income derived from laser must be monitored over time. A new terminology used in pedonomics is KPIs which stands for key performance indicators.

These are the factors that are used in evaluating the success of the profit centre as follows:

1. Laser-assisted procedures.
2. In-referrals for laser procedures.
3. New patients that come asking for laser.

If KPIs seem to increase or even remain at a good level, this indicates that break even and the much awaited ROI will not be far off.

Unique selling proposition

The USP is the unique cutting edge of any practice. When it comes to paediatric dentistry, lasers are indeed a unique selling proposition due to their contemporary benefits. In the field of marketing and management, USP is defined as the factor or consideration presented by the seller as the reason that the product or service is different from and better than that of the competition. The USP of lasers are as follows:

- No pressure on or contact with the tooth.
- Easier healing.
- Non-surgical minor procedures.
- No drill.
- No anesthesia.

Six Sigma approach of pedonomics

Six Sigma is defined as the set of techniques and tools for process improvement. It was introduced...
A Six Sigma process is one in which 99.99966% of all opportunities to produce some feature of a part are statistically expected to be free of defects (3.4 defective features per million opportunities). When applied to medical or healthcare systems, the most important dimensions of the quality of the medical act are:

- Safety
- Professional competence
- Acceptability
- Efficacy and Relevance
- Efficiency
- Continuity
- Interpersonal relations
- The patient’s satisfaction
- Patient compliance.

**Lasers as the Six Sigma in pedonomics**

To make the delivery of the treatment best accepted by the family, it must be fit to comply with the level of patient acceptance. The average amount that can be generated by laser treatment quite exceeds the amount generated by conventional treatments.

The approximate amounts ranging in our practice which runs its costs parallel to the costs in the United States can be seen from table 1 and 2 and the following numbers:

- The average amount spent on purchasing as laser: 350,000 AED.
- Equated monthly instalments calculated with interest: the purchase of laser was made with complete down payment.
- Average cost per month over three years period: 50,000 AED.
- Average increase in treatments with laser vs conventional approach: about 200 per type of treatment.
- Fillings: approximately 300 more with laser than Conventional way.
- Efficiency 17 ref.
- Accessibility
- Professional competence
- Acceptability
- Safety
- Continuity
- Interpersonal relations
- The patient’s satisfaction
- Patient compliance.

- Break even was tentatively achieved at the end of 14 months.
- Profit started roughly after this period.

**Conclusion**

The Six Sigma approach with lasers teaches us to apply the zero-defects principal. This degree of excellence is not just in a word, but there is a realistic possibility of making it happen. It is an approach that can actually accelerate the rhythm of development and of the distribution of new ideas within an organisation. Laser is a tool that helps in the application of the Six Sigma principle in the dental office. In conclusion, it is statistically proven that laser with all its attributes is quite efficient in bringing “more dentistry” to a dental office.

**Editorial note:** A complete list of references is available from the publisher.
Annual conference in Edinburgh
BACD calls for excellence in cosmetic, appoints Chandrapal as president

By DTI

EDINBURGH, UK: Once a derided field, cosmetic dentistry has changed so much that it has become of great importance to Britons, it was found.

According to the survey, all age groups were concerned about their teeth. One in three admitted that they looked into treatments to alter their appearance. The age group most likely to consider treatment was the age group of 18 to 24.

The survey was conducted by media intelligence company DMG; Enlighten, Ivoclar Vivadent and Henry Schein. Business topics were also covered and so too was a trade exhibition, supported by industry heavyweights, including Align Technology, DMG, Enlighten, Ivoclar Vivadent and Henry Schein. Business topics were also covered and so too were some pertinent issues for dental technicians.

“Our education committee has once again assembled top educators from around the world, to present you with cutting-edge education that will enable you to continue to deliver quality, ethical cosmetic dentistry in this digital age, with a better understanding of the technology, the materials, the techniques and the possibilities they will bring,” Napier told the delegates.

The BACD Annual Conference was also a fantastic opportunity for delegates to meet and network with like-minded, talented professionals. Undoubtedly, one of the event highlights was the gala dinner being held at the Balmoral, on the Edinburgh’s landmark hotels, on Friday.

Abb. 2: Dr Andrew Chandrapal (second from left) took over the BACD presidency from Dr Bertie Napier (right).
“Make everything about tooth whitening predictable”

An interview with Dr Payman Langroudi, head of Enlighten Smiles

Enlighten Smiles is one of the UK’s most trusted tooth whitening brands. With guaranteed results and a strong marketing system, as well as its own laboratory that helps develop consistent products and its exclusive Centres of Excellence programme, the company aims to be the ideal partner for every dental business wishing to expand its portfolio. Dental Tribune spoke to Enlighten Smiles head Dr Payman Langroudi him briefly about changing perceptions with regard to tooth whitening and where his concept fits in.

Dental Tribune: Dr Payman, how would you describe the philosophy behind the Enlighten system?

Dr Payman Langroudi: It is not only the product we are presenting, but also the marketing service that we are offering to increase performance of every individual practice. Consider that, in the Western world, 80 per cent of people desire a whiter smile, but the average dentist only performs one whitening per month. There is a complete disconnect. Dentists do not want to be seen as chasing sales or being pushy and therefore it is necessary to change the mindset completely.

If one goes to McDonald’s, for example, the staff ask whether one wants fries with one’s order and it is considered a normal thing. So, what we would like to see is it becoming usual to ask every patient about the colour of his or her teeth. Changing the mindset of both the public and dental professionals is what we are working on with this system.

Does this philosophy apply to education too?

Tooth whitening is still not taught in any of the universities in the UK and often what students learn in dental schools is out of date anyway. In a way, this is a problem, but also offers opportunities for us to educate dental professionals. By ensuring that the entire dental team knows how the product works and the side-effects that patients might experience, one can provide a well-rounded service to patients when they come into the practice with questions, for example.

Cosmetic dentistry now seems—and the President of the British Academy of Cosmetic Dentistry spoke about this development this morning—to be an integral part of general dentistry. Where does tooth whitening fit into this picture, in your opinion?

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Conservative smile design for the general dentist

By Dr Rami Chayah, Lebanon

Abstract

This article discusses the advantages of short-term anterior tooth alignment using the Inman Aligner system, particularly for general dentists. The article will give a brief description of the Inman Aligner appliance and its use in short-term orthodontics, and it will answer three major questions the general dentist should ask himself or herself during the treatment planning process. In support of this treatment modality, three case scenarios general dentists see daily will be given as examples.

Introduction

General dentists face the daily challenge of performing treatments for patients with malaligned anterior teeth who refuse orthodontic treatment, many of whom regard fixed orthodontic treatment as too long a commitment for achieving their desired aesthetic results. In today’s fast-paced life, some patients are not prepared to wait or to go through long treatments. One of the greatest benefits of short-term anterior alignment is that many people who would refuse comprehensive orthodontic treatment may accept short-term removable alignment techniques such as the Inman Aligner system.

The Inman Aligner is a simple removable appliance, a modification of the removable spring retainer. It uses super elastic coil springs to apply highly efficient light and consistent forces on both the labial and lingual surfaces of the anterior teeth (Figs. 1 & 4). The appliance is fabricated on a cast on which, based on a surgical model, the anterior teeth needling correction have been removed and reset in the ideal position in wax on the working cast. When the patient wears the appliance, the built-in forces generated by the spring coils will correct the malaligned anterior teeth (Fig. 3).

What distinguishes the Inman Aligner appliance from other short-term orthodontic systems such as Clear Align (Align Technology) and Six Month Smiles is its low cost, low risk and short learning curve for general practitioners. Only one appliance is used from the start to the end of the treatment. Sometimes, several clearaligners may be used to rotate resistant canines. The system is well received by patients because it is fast and relatively cheap. It also accommodates today’s active lifestyle. Usually, most cases take from six to 16 weeks. Patients can take the appliance out during meals or work meetings.

As with any other treatment technique, the Inman Aligner has its limitations. Hence, case selection is imperative, as the Inman Aligner is not suitable for posterior orthodontic treatment or Class II or III treatment. Only certain types of movements are possible and some patients will still need conventional orthodontic treatment or indirect restorations. Certain criteria should be met before treatment proceeds. At consultation, other orthodontic alternatives should be offered. The dentist must quote for the long-term retention maintenance and should look for any skeletal discrepancies. Compromises must be signed off.

Treatment concept and case presentation

Dentists need to consider three questions about treatment during the treatment planning process. The first question: can the patient’s teeth be...
Fixed without orthodontic treatment in a very short period. In order for the general dentist to answer this question, he or she should first establish whether the patient does not wish to pursue orthodontic treatment because of the time commitment and cost. Would he or she also refuse short-term anterior tooth alignment? Would the occlusion be improved even though a Class I molar or Class I canine relationship may not be achieved? Patients may prefer short-term alignment techniques because of the shorter treatment time and the lower cost.

**Case 1**

The first case presented is a good example of a scenario relevant to the question above. The patient was a young woman at college who presented at my office requesting a full smile makeover of her veneers, the desired a “Hollywood smile” as expressed in her own words. Her complaint was the retracted maxillary right and left central incisors, the incisal edge wear on the maxillary central incisors and mandibular anterior teeth, the pouty shape of the maxillary and mandibular canines, and the yellow colour of her teeth overall. It could be argued that it would be highly unethical to prepare the sound enamel, transforming her ten maxillary teeth into stumps, for the rest of her life, especially at this young age. After long discussion and explanation of the disadvantages of the shortcut route of preparing her teeth for ceramic veneers, this option was excluded. Several other options were available and discussed with her, but because she wanted a smile enhancement in a short period of time, conventional fixed orthodontic treatment was also excluded. After checking her bite, it was observed that there was insufficient interocclusal space to shift the maxillary central incisors forwards without opening the bite. However, the patient accepted wearing the Inman Aligner system to overcome this constraint and flexibility regarding being able to take the appliance off during the day while eating.

The treatment plan was to follow the ARB protocol (alignment, bleaching, and bonding). This concept still constitutes a smile makeover but in a very conservative manner. Taking into consideration her age and her sound enamel tissue, this was agreed to be the most progressive means of carrying out her smile enhancement. First, her maxillary teeth were aligned using the Inman Aligner with an expander for nine weeks. Two extra-circular aligners were used in the last two weeks of treatment to de-rotate the maxillary left lateral. Once the maxillary teeth had been aligned and after two weeks of treatment, the teeth were bleached with custom-fitted super-sealed trays (Fig. 6). Now the patient had been straightened and whitened, the patient became more aware of the differential wear on the incisal edges of her anterior maxillary and mandibular teeth. Incisal edge bonding using composite resin with custom-made trays was applied. The case was presented to demonstrate the necessity of aligning the teeth even before placing ceramic veneers. 10–13

The treatment plan was to align the teeth first and then to reassess the restorative work needed (Fig. 16). The appliance was used for 12 weeks and only worn for up to 8 hours a day. During the last three weeks of alignment, the patient began to bleach his teeth. By week 12, the teeth were straight and the incisal edges were even. The patient received the ABB protocol (alignment, bleaching, and bonding). (Figs. 7–19)

**Case 2**

The second question to be considered regarding treatment: would some of the teeth be aggressively prepared or end up with root canal treatment if treated with restorative dentistry without alignment and would the overall outcome be better with alignment rather than without? This question addresses the ethical dilemma general dentists face every day. We often have cases with overlapping anterior central incisors in our office.

The patient presented in this case was bothered by the look of his overlapping maxillary central incisors (Figs. 20 & 21). His mandibular teeth were also crowded, but for some reason, his concern was only with his maxillary teeth. He had started to hide his smile in front of his friends, feeling embarrassed to show his maxillary teeth. After the full-orthodontic examination and discussion about all of the treatment options, including comprehensive orthodontic treatment, the patient chose the removable Inman Aligner system owing to its flexibility in that the wearer is able to remove the appliance for several hours a day and because of its short treatment time. The maxillary central incisor would have been aggressively prepared had it been treated restoratively. 10–13 By using a simple anterior alignment technique, the treatment took only eight weeks to straighten the teeth and a great deal of sound enamel tissue was preserved by conservatively resolving the unesthetic appearance of the maxillary teeth (Figs. 22 & 23).

The treatment plan was to align the teeth first and then to reassess the restorative work needed (Fig. 16). The appliance was used for 12 weeks and only worn for up to 8 hours a day. During the last three weeks of alignment, the patient began to bleach his teeth. By week 12, the teeth were straight and white (Fig. 27). At this point, a direct mock-up was done to show the patient the smile design that could be achieved with composite. He felt that the teeth were still flat and wanted a fuller smile. Because we had aligned the teeth, only minimal preparation was needed as evident from the wax-up and the decision was made to fabricate ceramic veneers instead (Fig. 28). This case showed that for complex situations and considering patients’ high aesthetic demands, pre-alignment is essential to produce minimally invasive veneers with minimal enamel loss. This clinical approach guarantees that the strength of bonding to the enamel is much greater.

**Conclusion**

The goal of this article is to encourage general dentists to reflect on the importance of considering short-term tooth alignment alone or in conjunction with restorative dentistry when treating patients. Hopefully, these three questions and cases will prompt readers in thinking through the process of this treatment modality.

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