The magazine for dental professionals working in Ireland
July 2017

# Ireland's Dental magazine

Cork graduate wins prestigious dental award

***For full details, turn to page 13***

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"What we lack is true political will to reform a broken system and challenge all the vested interests"

**Opinion with Tommy O'Malley, page 5**

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Welcome

# Editor's desk

with Bruce Oxley

# Waiting game

The wheels of government rarely turn quickly, but the wait for the new Dental Act and a new Dental Health Action Plan has taken this to the extreme.

It is now 23 years since the last dental health plan was published and an astonishing 32 years since the current Dentists Act was introduced.

The last 10 years of ministerial dental neglect can be explained away, but not excused, by the crash and the austerity years that followed. However, even before the events of 2008, it was still well past due for an update.

The IDA have come out and praised the recent Sláintecare report for simply mentioning the devastating effect the cuts to state schemes have had on oral health, and they are keen that the schemes are rethought and made fit for purpose.

However, as Tipperary dentist Padraig O'Reachtagain says on page seven of this issue, reintroducing 2009 levels of funding to a scheme in 2017 doesn't make much sense.

Successive administrations have overlooked dentistry and if the profession is going to have any hope of slowing and eventually reversing the damage, then the government need to stop ignoring dental health and start funding prevention properly. ■

*Bruce Oxley is editor of Ireland's Dental magazine. To contact Bruce, email bruce@connectcommunications.co.uk*

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# Opinion

with Tommy O'Malley

# Slántocare

The recent publication of the Oireachtas Committee on the Future of Healthcare (Sláintecare) was eagerly awaited by many because the report promised a new beginning for the delivery of healthcare in Ireland. What should have been a triumph of cross-party political spin turned into what is looking like yet another labour of Sisyphus*. National (Fine Gael leadership election) and international (terrorism, Trump et al.) events overshadowed its presentation to the media and the public. It seemed to be the quintessentially badly timed political event in the current Dáil's session.

With barely a decent synopsis described, let alone any meaningful commentary, there was the odd editorial. Even these were downbeat on any significance the report might have for the future reform of our dysfunctional health service. Maybe we are just worn out from the anticipation of all the previous 40 "reports" and programmes on the health service, and the disappointment that each, in turn, was disdainfully shelved without even the decency of a pretence of action. If the reaction to this report's publication is anything to go by, we may well have heard the last of it as well.

Dentistry gets re-instatement to the pre-economic crisis budget to the Dental Treatment Services Scheme and the development of a universal package of dental care. The former had already been announced in the last budget and the latter is, amazingly, going to be devised this year, 2017. So, despite the fact that medical inflation is running at 40 per cent and that, now, half the population have medical cards, the total allocated increase for the DTSS for 2017 and the NEXT 10 YEARS will be €17 million per year.

> "Economic growth without investment in human development is unsustainable – and unethical" – Amartya Sen

In establishing the committee, the Dáil 'ordered' that it "shall examine and recommend how to progress a changed model of healthcare that advocates its principles of prevention and early intervention, self-management and primary care services as well as integrated care". When one looks at what actually was in the report, one cannot help but feel that maybe the committee just got tired and forgot.

How can reverting to a quarter-of-a-century-old dental policy that was broken in the first place, put a ridiculous cap on expenditure for the next 10 years and expect dentists to sign up to a pie-in-the-sky "minimum dental package" with no costings, planning or discussion to ever fulfil the terms of reference in relation to dentistry. It could certainly speed up the separation of private and "public" dental care in the future.

If the plan for the future is to get private dental practitioners on board, especially if dentists are to form part of an integrated primary care team-based system, then generalised aspirations are not going to get us very far. It is this aspirational tone of the report that the politicians were probably hoping for.

What we lack is true political will to reform what is a broken system and challenge all the vested interests that up until now have stymied progress to a truly universal and caring health system.

Congratulations on a wonderful report but your figures are conditional on the economic climate and well, sure we'll see. Slántocare. ■

* In Greek mythology, Sisyphus was condemned to an eternity of rolling a boulder uphill, then watching it roll back down again.


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# Recognition welcome but work to be done

## Sláintecare report is a step in the right direction but dentists insist that the devil is in the detail


Padraig O'Reachtagain

Irish dentists have welcomed the recognition of the "huge damage" caused by cuts in state support to dental patients in a recent government report, but insist there is a lot more work to be done to reset the balance.

The recent all-party Oireachtas committee into the future of healthcare, Sláintecare, recommends re-instating in full the Dental Treatment Services Scheme (DTSS) or Medical Card Scheme at an annual cost of €17 million a year. And, while the increased investment was welcomed, Irish Dental Association chief executive Fintan Hourihan said there was now an opportunity to develop and enhance the scheme. He said: "Trying to repair a fundamentally flawed scheme which was introduced almost a quarter of a century ago, makes no sense. We have to adapt, to learn from the past and introduce a new scheme which is fit for purpose.

"Likewise, we need to build on the limited progress made with the recent discussion on the separate PRSI dental scheme at a time when we are playing catch-up following decades of neglect of oral health by the state and a wide range of political parties in Government."

However, in a letter to the *Irish Times*, Tipperary dentist Padraig O'Reachtagain argued that, if the dental services budget for medical card holders is reinstated at 2009 levels, an increase of 25 per cent on current levels, things are unlikely to improve. He wrote: "The number of medical card holders has increased by 17 per cent during this time. Also, the fees for dental services provided to medical card holders have not been increased for 10 years, while the consumer price index has increased by 7 per cent and medical inflation by 40 per cent. There is no hope of reversing the worsening of dental health levels if this report is implemented."

Padraig also criticised the government for its failure to replace the 23-year-old national oral health policy. To which, a spokesman for the Department of Health responded: "Work commenced in the Department of Health on the development of a National Oral Health Policy in 2014. It was anticipated that the project would take three years to complete, given the extensive research, analysis and consultation involved. It is due to be completed later this year. The Policy will replace the Dental Health Action Plan, published in 1994."

# UCC students pick up 2017 Costello award

Two fourth-year dental students from Cork University Dental School and Hospital have been named as the recipients of this year's Tony Costello Memorial Medal.

Li Ying Mah and Eva Taaffe presented a poster presentation entitled 'Anatomical Patient Factors that Limit Orthodontic Treatment' at the IDA's Annual Conference in Kilkenny recently. The students, who were supervised by Prof Declan Millet and Dr Patricia McDermott, were presented with their award by Mrs Costello in memory of her late husband, and the new IDA president Robin Foyle.

The award of the Tony Costello Memorial Medal is based on a poster presentation on a subject applicable to general dental practice and is judged on clinical usefulness, academic content, presentation and originality.

# Tax cash should fund oral health programmes

## IDA criticises decision not to ring-fence any revenue from the upcoming 'sugar tax'

The Irish Dental Association (IDA) has again called for any monies raised through the impending "sugar tax" to go towards oral health programmes.

The call came as Minister for Finance Michael Noonan was reported to have said that he was opposed to the principle of ring-fencing tax revenue as it limits the flexibility of government to allocate funds.

A sugar tax is widely expected to be introduced next April, coinciding with the UK's introduction of a similar tax. The IDA argue that the negative effects of the overconsumption of sugary soft drinks allied with the cutbacks to the dental state schemes means that a proportion of any tax revenue should be allocated to help improve oral health.

IDA chief executive Fintan Hourihan expressed the association's disappointment at the decision and called on the minister to reconsider.

He said: "Dental decay is the most common chronic disease young children experience in Ireland today. This is due, in the main, to very high levels of sugar consumption, including soft drinks. The direct link between sugar intake and dental decay has been clearly established so it makes sense that a significant proportion of the monies raised through a sugar tax should be used for oral health promotion."

# It's time to end the neglect

## IDA president tells government that enough is enough and a new oral health policy must be forthcoming

The new president of the Irish Dental Association (IDA) has called on the government to end "decades of neglect" and finally come up with a new oral health policy.

It has been 23 years since the last policy was published and, in his inaugural address as president, Dr Robin Foyle, claimed that the decline in oral health has been ignored by successive governments and that this "lack of leadership" was symptomatic of "an appalling disregard for oral health by the minister and his predecessors".

He said: "Oral health is undoubtedly suffering, particularly for those who can least afford dental care.

"The evidence around us is mounting on a daily basis: children faced with large numbers of extractions, due to lack of early visits and prevention, increases in the numbers of children requiring treatment under general anaesthesia, increases in the number of patients requiring hospital admissions for dental treatments, noticeable increases in the levels of decay, longer orthodontic waiting lists and falls in the number of regular dental visits."

He continued to say that the numbers of children eligible for treatment rose by 20 per cent around the same time employment numbers by the public dental service fell by 20 per cent.

The IDA has estimated that, since 2010, cuts in funding for the two state-funded dental schemes has seen more than half a billion euro taken away from patients towards meeting the costs of their dental care.

Dr Foyle also said that the majority of debates surrounding the sugar tax have focused solely on the issue of obesity, which excludes other issues like dental care.

"Dental decay is the most common chronic disease young children experience in Ireland today.

"This is due in the main to very high levels of sugar consumption including soft drinks. It makes sense that a significant proportion of the monies raised through a sugar tax should be used to support oral health programmes."

# ASM registration opens


The programme for the RCSI Faculty of Dentistry's Annual Scientific Meeting, entitled "Risk: identification, management and consequences in dental practice" has been announced.

Registration for the event, which takes place in Dublin on 3 and 4 November, will feature a stellar line-up of speakers from the UK and Ireland including Raj Rattan, dental director of Dental Protection, and Aubrey Craig, head of dental division at MDDUS. Raj will be talking about the high-risk specialties in Ireland and Aubrey about the high-risk specialites in the UK.

There will also be sessions on paediatrics, orthodontics and periodontics as well as infection control and record keeping.

Former Dental Council president Eamon Croke will present a session on "The Dental Council of Ireland and you", before talks on "Healing the healer", oral surgery, endodontics oral anticoagulants and aesthetic dentistry.

*To find out more and to register, visit asm2017.ie*

# Quarter of a century for Braemar Finance

Dental practice finance specialists Braemar Finance is celebrating its 25th anniversary with managing director and founder partner David Foster leading the praise for his colleagues, customers and suppliers.

David founded the business in 1992, and he grew the business into one of the premier providers of finance for the professions in the UK, before it was acquired by Close Brothers in 1989. He said: "We are one of the few funders to the professions that have demonstrated this level of longevity and commitment to businesses and individuals in the professions sector. While much has changed since 1992, our business model has remained consistent and simple.

"Our team's level of industry knowledge is unmatched and is key in helping our customers understand the value of their investment.

"I would also like to thank both our customers and suppliers for their continued support over the last 25 years, many of who have been with us for much of the journey – long may that continue."

David has recently announced his retirement, effective 31 July this year ,with Aileen Boyle named as his successor.

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# First tooth, first visit

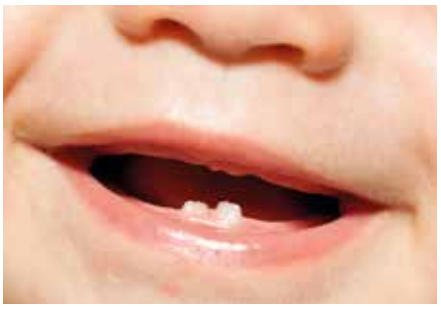
## Paediatric dentist tells IDA conference that there is significant evidence for children to have their visit dental visit by their first birthday

A leading dental expert has called for the Government to introduce a "use it or lose it" voucher scheme to cover the cost of every child's first dental visit.

The Irish Dental Association (IDA) estimates that the scheme will cost €2-3 million but that the savings made ensuring a child has zero cavities in later childhood will outweigh the initial cost.

The IDA believe that more than 10,000 Irish children are having teeth extracted under general anaesthetic annually, which they have described as a disgrace.

Dr Eleanor McGovern, a consultant peadiatric dental surgeon at Temple Street Children's University Hospital, claims that 50 per cent of children in Ireland have tooth decay by the time they are five years old. Speaking at the IDA's annual conference, she said: "Dental decay is the most common chronic childhood disease



and is associated with a reduction in quality of life of the child. It can also interfere with the child's sleep, nutrition, behaviour, growth and development."

She continued by saying children will require more days off school to go to numerous dental visits and doctors' appointments when they have dental decay. Dr Govern claims Ireland needs a similar publicly funded programme to Scotland's Childsmile programme, which provides children with free dental care until they are 17 years old.

She said: "It is time for our politicians, the HSE and the Chief Dental Officer to provide leadership. By using revenue from the impending sugar tax we could finance our own Childsmile programme and save our children a great deal of pain and heartache.

"The anti-smoking campaign has been highly effective in Ireland. We need to apply the same approach on a consistent basis to sugar consumption. Water and milk are the only safe drinks for children's teeth."

When Scottish three-year-olds were examined, it was found that children in deprived areas had higher rates of dental decay, but this has been reduced since the Childsmile programme was set up.

# Flagship practice opens in Meath

## Another new practice opens in Ashbourne, with state-of-the-art facilities and technology

The latest flagship practice in the ever-expanding Dental Care Ireland empire opened in Meath recently providing the benchmark for all of the group's practices nationwide.

The new family-focused practice, located on the High Street in Ashbourne, offers a full spectrum of dental treatments from routine to cosmetic dentistry, and is led by principal dentists Dr Cliona O'Brien and Dr Clair Burns.

Dr O'Brien said that she is excited to be showcasing the new practice over the coming months.

She said: "We are delighted to mark the opening of the very first Dental Care Ireland practice here in Ashbourne. On a personal level, I am honoured to bring my years of experience and training back to Ashbourne and I hope that our patients will benefit greatly from the quality care that we offer."

Dental Care Ireland is an Irish-owned network with practices in local communities throughout the country.


To date, the group employs 150 staff across 11 general and specialist dental practices in Dublin, Meath, Carlow, Mayo, Offaly and Kilkenny.

Colm Davitt, chief executive of Dental Care Ireland, claims that what sets the group apart from other practices is that all dentists are established, loyal, local practitioners.

He said: "We add that level of quality by ensuring the latest facilities for patients, including new services and providing added convenience in terms of both local access and better opening hours. Our vision is to deliver the highest levels of care and professionalism for patients of all ages in Ashbourne."

# DCI appoints new group clinical advisor

*Ireland's Dental* magazine columnist Paul O'Dwyer has been appointed to the role of group clinical advisor for Dental Care Ireland. A graduate of both University College Cork and the Royal College of Surgeons, Dr O'Dwyer brings 20 years of experience in clinical dentistry and healthcare management to the role. He will work alongside founding partner Dr Kieran Davitt to maintain and support the highest clinical standards across the group.

A native of Cahir, Co Tipperary, Dr O'Dwyer worked for more than a decade in general practice before completing a masters degree in healthcare management. He previously held the role of clinical director at Smiles Dental.

Dr O'Dwyer is also a part-time guest lecturer at the Institute of Leadership in the Royal College of Surgeons and a regular media commentator.

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# Irish graduate is Dentist of the Year

## Cork alumna is recognised at the prestigious Scottish Dental Awards 2017

Cork graduate Ciara Sutherland was named as the Scottish Dental Awards Dentist of the Year for 2017 at a recent awards ceremony in Glasgow.

Hosted by comedian and radio personality Des Clarke, the 2017 Awards event was held at the five-star Glasgow Hilton and saw just under 500 guests come together to celebrate the very best the Scottish dental industry had to offer.

Ciara, who graduated with honours from Cork University Dental School in 2008, became the youngest winner of the Dentist of the Year award since the awards begin in 2012. After graduating, Ciara undertook cosmetic training from Professor Paul Tipton and in 2011 she began specialist training to earn membership to both the Faculty of General Dental Practitioners and the Royal College of Surgeons.

Ciara with award sponsor Nick Leca

The judges were impressed with the amount of postgraduate training and further education she had amassed in her career so far. They said: "While clearly a driven and ambitious individual, her nomination also managed to convey her ability to provide a calm and gentle environment for her patients. From the testimonials submitted to support her nomination, it is clear she is held in high esteem by patients and colleagues alike. Her professionalism, outstanding patient care and attention to detail is mentioned numerous times and the warmth and depth of feeling was clear. The judges felt that she was the outstanding choice."

Ciara said: "I'm so thrilled. I love my job – and it's so great to hear that my patients actually look forward to their visits to the dentist. Whether I'm working with a bride-to-be to get her perfect smile, helping a nervous patient or planning more complicated treatments, I really like that I get to know everyone in the chair.

"I'm delighted to see that by simply being kind to your patients, you can gain recognition. It's also such a boost to get this award now, just a year after being back from maternity leave. It proves that being a mum of a toddler is totally compatible with progressing a career."

# Dentistry reaches wider audience

## Importance of integrating oral health into Irish health agenda argued at conference

Dublin specialist periodontist Richard Lee Kin has highlighted the importance of integrating oral health into the Irish health agenda after dentistry was included at the Future Health Summit for the first time.

The summit, which has been running for 14 years, has grown to become one of the major events for healthcare in Ireland, attracting more than 3,000 delegates, 160 speakers and 140 exhibitors. In 2016, Richard became the first dentist to speak at the event, talking about the significance of oral health as an integral, not separate, part of healthcare and wellbeing.

As a result he was asked to put together a programme for an oral health symposium to become part of the 2017 summit.

He said: "The symposium's aim was simple – to raise awareness of oral and dental health and to highlight the importance of the role of dentists, and indeed all of those working in one of the most inhospitable and challenging environments – namely the mouth. This was incredibly challenging and there were many, many organisations present that were oblivious and who are now engaged. I hope that this is another step forward.

"We cannot underestimate the critical importance of integrating oral health into the Irish health agenda."


Richard with Minister for Health Promotion Marcella Corcoran Kennedy

## Oral health bursary open for applications

Applications are now open for a €1,500 bursary to promote the communication of current oral promotion projects and work in Ireland.

The award will be announced at the Oral Health Promotion Research Group Conference 2017 on 14 September at the Ashling Hotel in Dublin.

Applications can be submitted by individuals or teams and should describe a recent or planned oral health promotion project. The work should not have been presented elsewhere. Applicants from the HSE must have permission of their line manager.

*Visit www.dentalhealth.ie for more information.*

# Scottish Dental Show goes global

## The 2017 Braehead Arena event saw delegates travel thousands of miles to attend annual trade show and conference

The Scottish Dental Show 2017 drew delegates from all over the world with dental professionals travelling from as far afield as the Philippines, Indonesia, Pakistan, India, Canada and Chile.

The Glasgow event, which saw just over 2,000 people through the doors also welcomed European delegates, with dentists from Germany, Croatia and the Republic of Ireland attending.

On top of the international audience, the Braehead Arena event saw nearly 150 delegates attend from England, Wales and Northern Ireland as well.

The record for the furthest travelled goes to three dentists from Jakarta in Indonesia, a staggering 7,300 miles away from Glasgow. They were closely followed by three dentists and a dental student all from the same family clinic in Cainta, a town just outside Manila in the Philippines.

Drs Simoun, Rachel and Charlene Monique Suguitan, and student Romina Venezia Suguitan, all travelled 6,600 miles to be at the 2017 show.

Simoun revealed that this is the second time he has visited the show and, as he had such a great time in 2016, he brought more of his colleagues across for the 2017 event.

Elsewhere, a professor from Aga Khan University Hospital in Karachi, Pakistan, visited the show as well as an oral and maxillo facial surgeon from RVS Dental College and Hospital, in Coimbatore, India.

They were joined by general dentists from Burlington, Ontario and Yarmouth, Nova Scotia as well as a university dentist from Santiago, Chile in visiting the 2017 event.

*The 2018 Scottish Dental Show will take place at Braehead Arena in Glasgow on 27 and 28 April. For more information and latest news, follow @ScottishDental on Twitter and Instagram and don't forget to like us on Facebook.com/ScottishDental*

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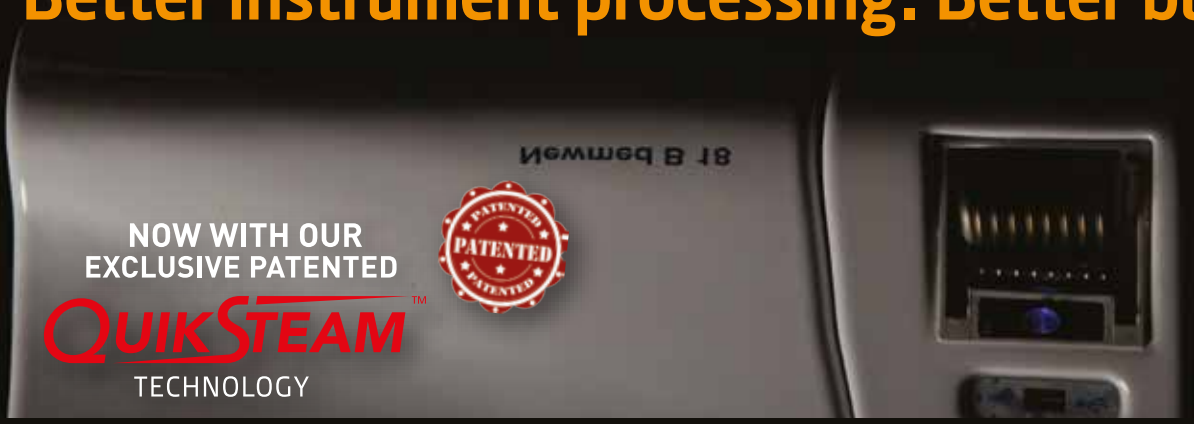

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Column

# Word of mouth

with Dr Paul O'Dwyer

# How to get the job

Paul gives some hints and tips for new graduates when interviewing for their first job, and also what employers should be looking for

It's important at this time of year, as the conferring ceremonies have just taken place, to look at the graduates of 2017. With the latest knowledge, techniques and materials at their fingertips, they are raring to go and get into practice. Years of student poverty are being cast aside as a new and hopefully lucrative future beckons.

One of the key aspects of this bright future is landing the right job. For many of the mid-to-late career dentists, an interview for an associate position traditionally involved a brief chat in the Wilton (Cork), or the Lincoln (Dublin) – usually over a pint.

However, times have changed – both for the principal and the aspiring associate.

Over the past number of years, I've been in a position where I have interviewed more than 300 dentists. I've seen good interviewees struggle in the process of landing a position. I have also reviewed many CVs.

This month's column is therefore aimed at those new graduates who are putting their best foot forward in looking for that elusive first position. This column may also help seasoned dentists understand the jobs market a little better and indeed help better identify those candidates, who, if they put the following points in action, may distinguish themselves at interview.

**Tip one – We are all qualified**

The average new dental graduate will (rightly) place their dental degree as their main achievement. While this may be so, understand that everyone who is applying for this position is also a dentist. Think slightly laterally, and try to demonstrate areas in patient care in which you excel. For example, dental charity work? Organising dental meetings (Dental Society in University)? Have you undertaken research at under-grad level?

**"Dentistry is a small world – choose your references wisely"**

**Tip two – The CV**

For new graduates, it is hard to put a CV together. Their clinical experience is limited to the schedule completed for their degree. Therefore, of more importance to the potential role is perhaps your work ethic, your administrative skills and, importantly, patient skills. Have you an ECDL? Are you certified or have you demonstrably learned any of the dental software packages?

If you are sending digitally, don't save it as "CV" – everyone else does this! Save the document with your title, name and the date it was finalised. E.g. "Dr JOE BLOGGS CV JULY 15th 2017". Also, think about your email address. It rarely inspires confidence when wheresthebeer@genericemail.ie emails looking for a job.

**Tip three – What distinguishes you from the others?**

Aside from the above, you also need to think about the role in terms of teamwork. You need to ask questions about how many nursing colleagues are in the practice, availability of radiography, turnaround time for laboratory work, access to specialists, flexibility for working time, work patterns for liaising with dental hygienists etc.

**Tip four – Clinical audit**

It is now part and parcel of training that clinical audit rightly finds a home. As undergraduates, you will have kept a record of your restorative and other clinical obligations. Some of you will have also charted success/failure of restorations e.g. crowns, bridges and endodontics. A top tip is to continue with this record. By working with your principal/clinical advisor, you can easily (and demonstrably show) your success rates in restorative and surgical dentistry. This will prove invaluable for both future jobs and also for discussions with patients in helping to choose treatment options.

**Tip five – References**

Smart principals will always look at references. Dentistry is a small world – particularly in Ireland. Choose your references wisely.

**Tip six – Attending the interview**

Be in contact with the interviewer well in advance of the interview date. Confirm your attendance and reconfirm on the day before if possible. If the position no longer interests you, make sure to signal same in advance – cancelling at short notice or not showing up reflects poor judgement and lack of consideration.

**Tip seven – Finding the right job**

Ask the important questions, not just financial, but career enhancing ones. Is there access to CPD through this job? What is the ethos of the team? How will I be supported in my first few weeks/months? To whom do I turn with a clinical or administrative issue?

By placing the above tips in place, it will help you choose the right position, in the right location which will help you grow and improve as a dental surgeon. One final tip: positions in rural areas away from the larger towns and cities can be more lucrative, have a cheaper cost of living and can have greater growth potential.

Best of luck, and I might even see you on the other side of the table at some stage. ■

# Ceramic abutments versus metal abutments

Dr Sarah Flannery provides a detailed insight into the evidence base behind ceramic and metal abutments in dental implant surgery

Abutments are the components of the implant system that connect directly to the implant. Their function is to support the prosthesis, and in doing so they connect the osseointegrated implant to the oral cavity. The mucosa that surrounds the dental abutment has been well studied, and is known to be a stable dimension similar to the biological width that surrounds natural teeth [1,2,3].

The peri-implant mucosa that faces the abutment can be divided into two zones. Firstly, there is the marginal zone which consists of a junctional epithelium approximately two millimetres long, and secondly, a more apical zone containing fibre-rich connective tissue, which is between one to one and a half millimetres high[1,4]. This soft tissue seal is essential to protect the ossiointegrated implant from the oral environment.

Until recently, dental implant abutments made of titanium have been considered the ultimate treatment for the restoration of an implant, with excellent survival rates from clinical studies[5,6,7]. However, their ability to fulfil the criteria of clinical success in the aesthetic zone of subjects with high expectations, a high smile line and a thin gingival biotype is questionable[8,9].

Dr Sarah Flannery

Since the introduction of high-strength ceramic abutments in the 1990s, strong interest has grown in them. The main question has been in their ability to perform as successfully and to be as biocompatible as their titanium counterpart[10]. The benefits of a ceramic abutment are obvious as when they are used, the peri-implant mucosa lacks the greyish discolouration, which can be obvious around metal implant abutments[8,11].

While the use and availability of dental implants becomes more widespread, so too does the aesthetic demand. However, many factors are important in the overall success of the dental implant. It is, therefore, important that all factors are taken into consideration when choosing a material for an abutment to ensure optimal outcomes in all definitions of success.

In conjunction with good aesthetics, the abutment material must also be biocompatible and show good clinical performance with high strength and high fracture toughness[12]. Today, titanium, gold alloy, and zirconium are the main materials used to fabricate implant abutments. They come as prefabricated or customised.

In this paper, we will review the literature relating to metal and ceramic abutments in order to conclude on a preferable material in relation to biological health and clinical performance.

## Literature review

The main abutments that have been used and researched in implant dentistry are made of commercially pure titanium, gold alloys, zirconium and aluminium oxide. Clinical success of an abutment has many facets and combines the absence of biological and technical complications.

Technical complications include fracture of the abutment, problems with the abutment screws (loosening or fracture) and abutment/crown combinations.

In the area of biological assessment, soft tissue complications, recession, aesthetic outcome, bone loss and fistula formation are included in the criteria for success of the abutment.

## Metal abutments

### *Gold alloy abutments*

In the restoration of an implant, a UCLA-type abutment is often used. It is usually cast in a gold alloy and is designed to engage the implant directly[14]. A number of studies have carried out research on the biological health of the surrounding mucosa and the clinical success of gold alloy abutments[15,3].

Abrahamsson et al concluded from his animal study that gold abutments differed from the controls (titanium abutments) in relation to the soft tissue. He stated that no proper attachment formed around gold abutments, and that soft tissue recession and bone resorption occurred. It was stated that the mucosal seal receded to the implant fixture[3]. Although this was a well-controlled study, it can be argued that there were only a small number of dogs in the study (five) and the fact that the implants were inserted into recently extracted areas may have influenced the outcome.

Later studies have shown conflicting evidence. In a four-year prospective controlled randomised trial with a split mouth design, it showed that gold alloy abutments preformed as well as titanium abutments in relation to the health of the

**"High aesthetic demand calls for more than titanium can deliver"**

peri implant tissue[15]. However, Welander conducted a study, whereby he examined the mucosal barrier at implant abutments of different materials and concluded that soft tissue healing to gold alloy abutments is different to that of titanium and zirconia[16]. This study suggests that an apical shift of the mucosal seal and the marginal bone occurred around the gold alloy abutments. He showed that at the connective tissue zone, a larger amount of fibroblasts and smaller amounts of collagen were present in contrast to abutments made from titanium and zirconia[16]. This was a well-controlled animal study, but it is not comparable to a clinical trial.

*Titanium abutments*

Commercially pure titanium is an alloy of approximately 99 per cent titanium and small amounts of oxygen, iron, carbon and nitrogen. The amount of oxygen determines the grade of the metal and increasing its amount results in an increase in strength and a decrease in ductility.

Over the years, many studies have highlighted its stable peri-implant mucosal attachments around implant abutments[17,7,18,12]. It also shows a very high strength with fracture being a rare complication of titanium abutments[19]. Lang showed that these abutments have a high level of precision at the abutment implant interface[20]. After years of clinical success, these abutments are used as the control in implant abutment studies due to the good stability of the metal[6].

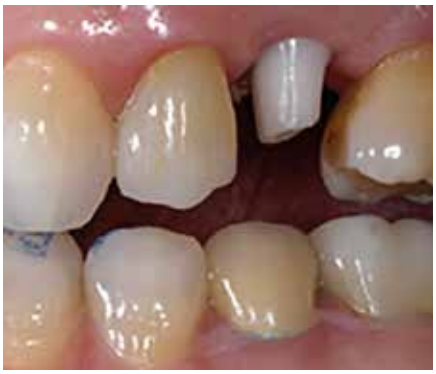
However, today's ever-increasing high aesthetic demand calls for more than the titanium abutment can deliver. The grey colour of the titanium may be visible through the peri-implant mucosa, especially in patients with thin gingival bio-types as described by Kao[21]. This may be of aesthetic concern if the implant is located in the anterior section and the patient has a high smile line[22,23].

## Ceramic abutments

*Alumina based ceramics*

In the early 1990s it was clear that a ceramic material was needed as an alternative to titanium abutments. The first all-ceramic implant abutments were made of densely sintered, high-purity alumina. Since then, numerous papers have shown a similar response of the peri-implant tissue when the alumina abutment is compared with titanium abutments[23]. In an animal study carried out by Abrahamsson, results showed that abutments made of alumina ceramic provided a mucosal attachment similar to that of titanium [3].

A metal abutment in situ and ceramic (pictured below)



Unfortunately, there are concerns about its strength. Andersson carried out a five-year prospective study comparing alumina ceramic abutments to titanium abutments. The success rate for alumina at five years was 98.1 per cent compared to 100 per cent for conventional abutments[24]. This was due to abutment fracture. Alumina is more brittle, less resistant to tensile forces and it is prone to fatigue. Micro-structural defects in the material may cause cracks in combination with tensile forces[25].

*Zirconia*

Zirconia was introduced into dentistry in the 1990s because of its good mechanical and chemical properties. It is a polymorphic material that occurs in three forms: a cubic structure at its melting point (2680ºC) which transforms into a tetragonal phase below 2370ºC. Below 1170ºC, zirconia is in the monoclinic phase and is accompanied by a 3-5 per cent volume expansion which causes high internal stresses[26]. This is known as stress induced transformation toughing. The stress associated with expansion acts in opposition to the stress that promotes the propagation of the crack, therefore highly intense tension will be required for the fracture to continue propagating[27]. The mechanical properties of zirconia are the highest ever reported for a dental ceramic. It is therefore an ideal material for the use of an implant abutment because of its high fracture resistance compared to alumina.

The reported use of zirconia since its introduction in 1995 is very promising, with results showing 100 per cent survival rates[19,28,29]. A clinical study has yet to report on the fracture of a zirconia abutment[34].

Apart from its mechanical properties, zirconia is white in colour, which has obvious benefits for aesthetic reasons. It is also radiopaque and biocompatible.

In an in vivo human study, titanium and zirconium oxide disks were attached to the molar region of 10 patients[30]. The surface roughness of both types of disks was the same. After 24 hours the disks were evaluated by scanning electron microscopy for the evaluation of bacterial adhesion. The results showed statistically significant differences between the two materials. The titanium disk resulted in 19.3 per cent of its surface colonised by bacterial species with a thin layer of cocci covering most of the remaining surface. The zirconia surface was only colonized 12.1 per cent with many areas showing no bacteria or salivary proteins. Rimondini had similar findings in his

Continued »

Table 1

| Failure rates | Titanium | Alumina |
|---|---|---|
| Group A | 0% | 6.7% (Due to fracture) |
| Group B | 0% | 0% |

Table 2

| Abutment material | Fracture | Fracture | Recession | Esthetic |
|---|---|---|---|---|
| Alumina | 1.9% | 1.9% | 9.27% | 100% |
| Titanium | 0% | 0% | 3.47% | 100% |

# Prof. Paul A. Tipton

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*Dr A Staunton*

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*Dr C O'Brien*

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Continued »

study[31]. The probable explanation for this lies in its superficial structure and in its electrical conductivity[30]. This low colonisation potential, in conjunction with its toughness and aesthetic value, make it a very suitable material for abutments.

Some studies have shown the biological stability resulting from abutments made from zirconia. Healthy mucosal conditions and stable marginal bone levels were observed at implants with zirconia abutments[32,33,28].

Zirconia abutments have shown biological stability

## Comparing abutment materials

A small number of randomised controlled clinical trials have been carried out comparing abutments of different materials:

### *Andersson et al 2001*

In a study entitled *Alumina Ceramic Implant Abutments used for Single Tooth Replacement: A Prospective 1-3 Year Multicenter Study*, alumina abutments were compared to titanium abutments. It consisted of two groups: Group A included 69 abutments, 34 test and 35 control, followed for one year. Group B was a subset of group A and consisted of 20 abutments, 10 test and 10 control, followed for three years.

Results showing failure rates can be seen in Table One.

No significant difference was found between test and control abutments for gingival inflammation or bone loss. Aesthetic results were recorded as excellent by both clinician and patient in all cases.

However, the strength of the alumina is the main concern. In this study, 75 per cent of the implants were replacing incisor teeth, and so the alumina abutments were not exposed to the heavier posterior occlusal load. This does not give a good indication of the fracture resistance of the test material. However, it is obvious that the alumina abutments are not as strong as metal.

There was also a mixture between screw retained and cemented crowns which may have skewed the results from a biological point of view. This also resulted in a difference in restorations being all ceramic for cement retained and porcelain on metal for screw retained. The cemented crowns were placed with three different types of cement. The above conditions limit the study results as other factors may have influenced the results. Group B had both test and control abutment with the same restoration and same cement, which gives us a much more stable result, although a much smaller sample size. Here we see no difference in survival between the two abutment types.

### *Andersson et al 2003*

*Ceramic Implant Abutments for Short Span FPD's: A Prospective 5 Year Multicenter Study.*

This randomised controlled clinical trial aimed to compare ceramic and metal abutments on implants supporting short-span fixed partial dentures. It gives us more reliable results regarding the strength of the abutment material as the bulk of the FPDs were placed in the posterior region. The results are displayed in Table Two.

Again, the strength of the ceramic material is questionable. However, in most other fields they preformed as well as the control abutment. Due to the tendency for ceramic materials to undergo fatigue, studies longer that five years need to be carried out to show the true strength of the material.

### *Vigolo et al 2006*

*A Four-Year Prospective Study to Assess Peri-implant Hard and Soft Tissue Adjacent to Titanium Versus Gold Alloy Abutments in Cemented Single Implant Crowns.*

In this study, 40 implants were placed in 20 patients. Single-tooth bilateral edentulous spaces were the criteria. This study was well controlled, as all test implants, abutments and crowns were the same, as were the controls. In addition, the same technician fabricated the abutments and crowns, and the same prosthodontist restored the implants. The results show no significant differences between the two groups.

The information outline in Table Three differs to some other studies (Abrahamsson 1998) (Welander 2008). However, the above study was very well controlled, apart from the fact that it does not specify how the teeth were lost. If periodontal disease was not a factor, then low pathogenic bacterial counts may have produced this result, where little gingival inflammation and bleeding occurred.

Continued »

Table 3

| Abutment material | Survival | Gingival inflammation | Bleeding | Bone resorption |
|---|---|---|---|---|
| Titanium | 100% | 4.7% | 6.8% | 0.4mm |
| Gold | 100% | 4.5% | 6.8% | 0.4mm |

Table 4

| Abutment material | Survival | Veneer chipping | B.O.P | PPD |
|---|---|---|---|---|
| Titanium | 100% | 16.7% | 30% +/- 30% | 3.3mm |
| Zirconia | 100% | 7.1% | 60 +/- 30% | 3.4mm |

Table 5

| Abutment material | 5 yearr survival | Technical complications | Biological complications | Esthetic complications |
|---|---|---|---|---|
| Ceramic | 99.1% | 6.9% | 5.2% | 0% |
| Metal | 97.4% | 15.9% | 7.7% | 6.6% |

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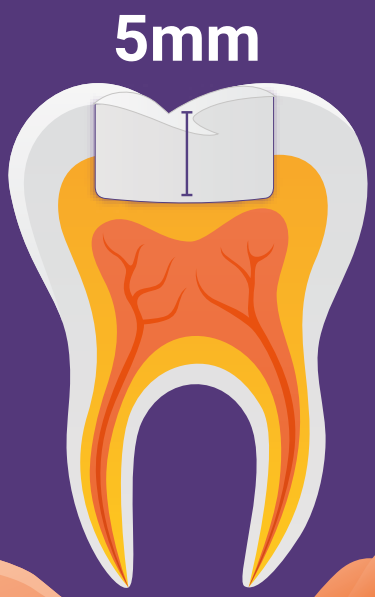


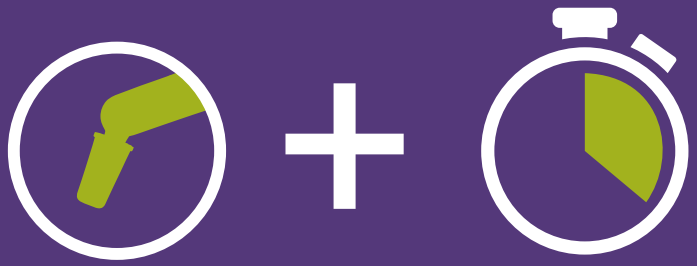

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***Sailer et al 2009***

Randomised controlled clinical trial of customised zirconia and titanium implant abutments for canine and posterior single tooth implant reconstructions: preliminary results at one year of function.

This study was carried out to test the strength of zirconia in posterior and canine regions, and to compare aesthetic results of both abutment types. A total of 22 patients were included with 40 implants. This was a very thorough study and result assessment included many facets. Under the heading of technical complications, this included fracture of the abutment, fracture of veneering porcelain and loss of retention either due to screw loosening or fracture of the screw. Aesthetics was measured by comparing peri-implant mucosal colour to control teeth using a spectrometer. The Jemt papilla index was also used (Jemt 1997). Soft tissue thickness was established using a fine endodontic file. The results are presented in Table Four.

This shows that at one year, zirconia

Survival rates for zirconia abutments have shown to be very promising

shows the same survival and esthetic outcome as titanium. This was a very well controlled study, however, only 12 of the original 20 patients from the control group presented for review, and 19 from the test group attended. It cannot give a true esthetic result, as the implants replaced posterior and canine teeth, which are not directly in the esthetic zone and have thicker gingival tissue.

Also, in the inclusion criteria, any patience presenting with evidence of

Continued »

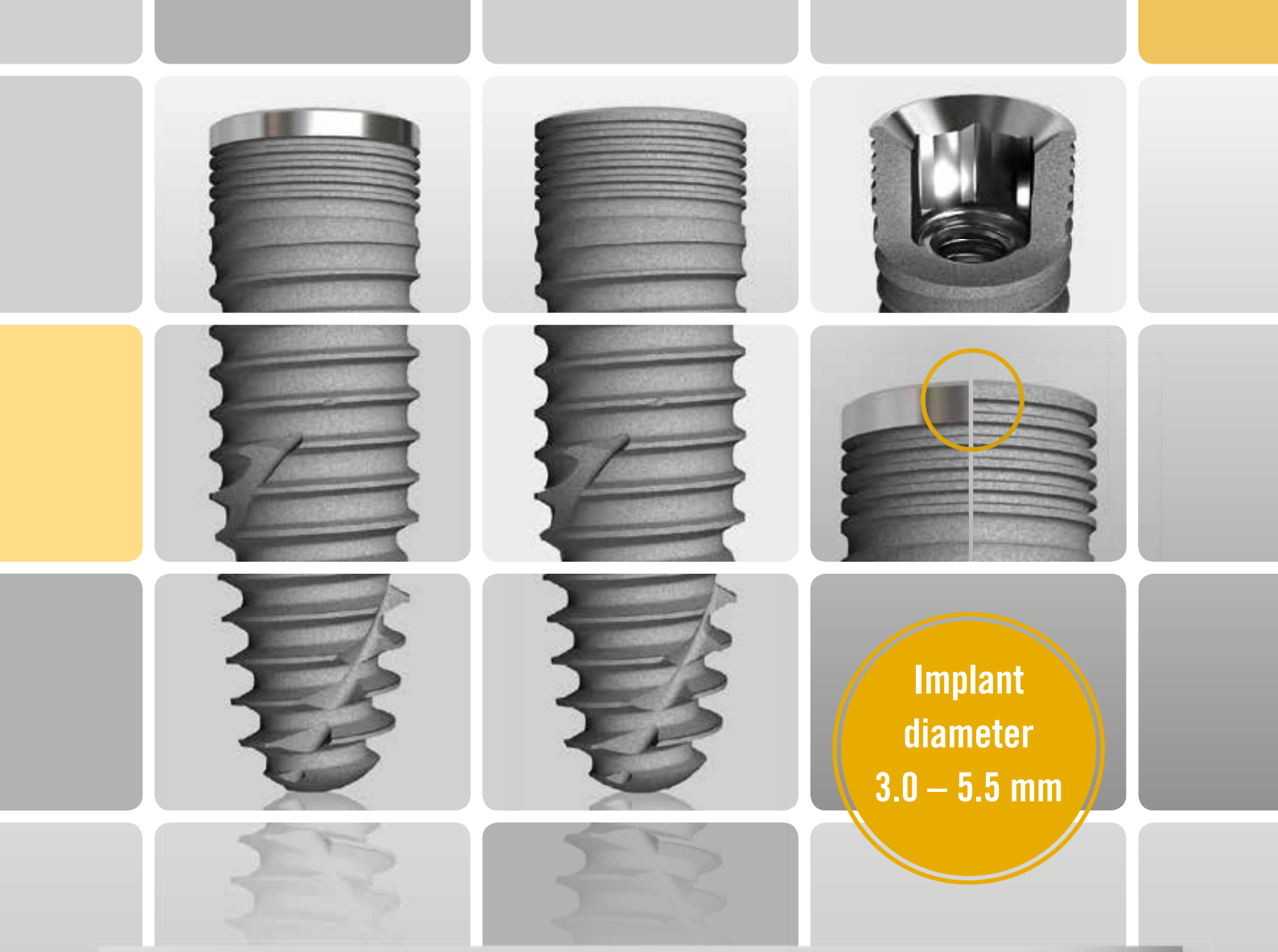
## ABOUT THE AUTHOR

Dr. Sarah Flannery obtained her dental degree from Trinity College, and graduated with honours in 2010. Previously, Sarah studied dental hygiene at Trinity College and qualified with a distinction in 2002. She worked for a number of years as a dental hygienist in a number of specialist practices before returning to further her career in dentistry.

Sarah has been dedicated to continuing her dental education and has attended many courses internationally. Among them are the Dr. Lorenzo Vanini, Master classes in composite dentistry, Lake Como, Italy and Digital Smile Design Courses in Istanbul and Timisoara with the world renowned Dr Christian Coachman and Dr Florin Cofar.

She has also completed a number of courses in areas such as endodontics, paedodontics and orthodontics. She provides a wide range of treatments including six month braces, Digital Smile Design and children's dentistry.

Sarah is a member of the Irish Dental Association and the International Academy of Aesthetic Dentistry. Areas of interest include cosmetic smile makeovers, minimal prep veneers and adhesive dentistry. Here at Seapoint Sarah's gentle friendly manor makes her a wonderful choice for any patient who is anxious or nervous.

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bruxism were excluded. While this helps to control the study, it may falsely represent the population and the strength of the test abutments.

## Discussion and conclusion

The literature review reveals a variance in the findings on the performance of titanium and ceramic implant abutments. Titanium abutments have very high clinical success rates, but are not always a suitable abutment choice. The purpose of this review was to determine if ceramic abutments are preferable to metal abutments from both a biological and technical viewpoint.

In arriving at a conclusion, it is important that all the relevant literature is assessed. In a systematic review carried out this year (Sailer 2009) all of the available information on abutments was extracted from the literature and analysed. Table Five summarises the results from 29 clinical studies which included 5,849 abutments.

Inclusion criteria for this review were strict, as from 7,136 titles, only 29 were chosen. However, only 166 ceramic abutments were included in this study. The other 5,683 were metal abutments. Criteria included an observation period over three years, detailed information on abutment type and detailed analysis of the data. This review concluded that no significant differences in the biological or clinical performance of the abutment types occurred and that ceramic abutments can be considered a valid alternative to metal abutments.

From all of the above literature, I conclude that ceramic abutments are preferable to metal abutments, when it comes to an aesthetic region with a thin gingival biotype, high smile line and high expectations.

The performance to date of zirconia strongly suggests that it is a preferable material to metal, showing fewer biological and technical problems and having a similar survival rate to metal, but as yet there are no long-term studies to back up this point of view. ■

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# Low-stress alternatives

Steve Bonsor describes relieving pain caused by polymerisation shrinkage stresses by using bulk fill resin composite material

When resin-based composite is cured it shrinks by a factor of between 2 to 4 per cent depending on the product. This polymerisation shrinkage causes stresses to be incorporated in the system either within the surrounding tooth tissue, at the restoration/tooth interface or within the body of the restorative material. These stresses may lead to partial or total debond, recurrent caries, microleakage, pulpal inflammation, marginal staining, fracture or micro-fracture of the surrounding tooth or pain on chewing[1-5].

Furthermore, the depth of light cure of conventional resin composite products is limited[6, 7]. To achieve a full curing of the resin composite, sufficient light energy of the correct wavelength of light must be provided to all of the material. In an attempt to overcome these potential problems, an incremental placement technique has long been advocated[8, 9], particularly when restoring posterior teeth.

Firstly, the shrinkage which occurs with the first increment may be compensated for by the subsequent increment and so on. Secondly, it permits the dentist to place each increment such that as few walls are bonded together as possible to reduce the configuration or C factor [10] in attempt to control the stresses and lastly each incremental of material may be fully cured as sufficient light may attenuate through the smaller bulk of material. This placement technique is therefore time consuming, tedious and requires meticulous technique[6].

The so-called bulk fill resin composite materials have been introduced to the market in recent years with the aim of reducing polymerisation shrinkage stresses as well as simplifying and quickening the clinical placement of the material. This case report describes the successful resolution of symptoms of pain when a conventional methacrylate-based posterior resin composite material was replaced by a bulk fill restorative material.

## Case report

A 35-year-old female geotech engineer with a clear medical history presented for her routine dental examination. A debonded, but still in situ, disto-occlusal resin composite in 16 was diagnosed with no obvious caries present. An appointment was made so that the restoration could be replaced.

At the treatment appointment, a local anaesthetic was administered and rubber dam placed. The existing restoration was removed and cavity refined. As it was considered not to be deep, no lining was considered necessary. After a sectional matrix system (V Ring, Triodent) had been placed, the cavity was etched with Scotchbond Universal Etchant (3M ESPE) for 15 seconds, washed for 15 seconds and lightly air dried leaving a glassy dentine surface.

Adper Scotchbond 1XT (3M ESPE) was then applied, air thinned and cured for 20 seconds. Filtek P60 Posterior Restorative (3M ESPE)


## ABOUT THE AUTHOR

Mr Steve Bonsor BDS(Hons) MSc FHEA FDS RCPS(Glasg), is a GDP and practice principal at The Dental Practice in Aberdeen. He graduated from the University of Edinburgh in 1992 and gained a Diploma in Postgraduate Dental Studies from the University of Bristol and completed a MSc at the same university in 2008.

He has previously held posts as a clinical teacher at Dundee Dental Hospital and School and honorary clinical teacher at the University of Dundee in the sections of operative dentistry, fixed prosthodontics, endodontology and integrated oral care.

Steve currently holds appointments at the University of Edinburgh as an online tutor on the MSc in Primary Dental Care programme and at the University of Aberdeen as honorary senior clinical lecturer and senior clinical teaching fellow leading the applied dental materials teaching at Aberdeen Dental School. In addition, he is heavily involved in postgraduate dental education having lectured throughout the UK.

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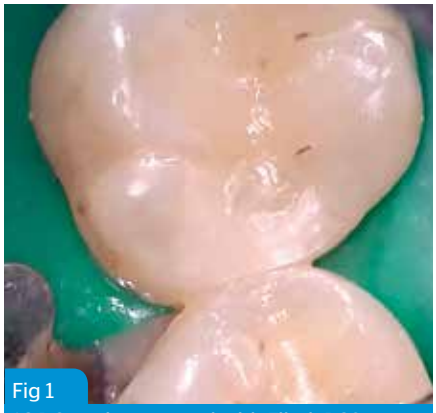

Fig 1
16 DO cavity restored with Filtek P60 Posterior Restorative (3M ESPE) after gross finishing but before the rubber dam had been removed

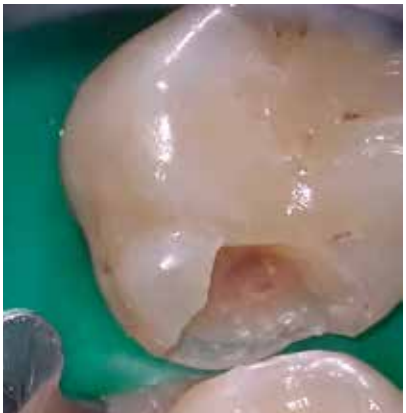

Fig 2
The completed cavity after the restoration had been removed

Fig 3
A V Ring (Triodent) sectional matrix placed and the cavity etched with Scotchbond Universal Etchant (3M ESPE)

## "The patient had no complaints as the symptoms of pain had resolved completely and very quickly"

was placed into the cavity using an incremental placement technique with each increment cured for 40 seconds. The matrix system was removed and gross finishing done using diamond finishing burs (Figure 1). Once the rubber dam had been removed and the occlusion checked, the restoration was polished using rubber points.

However, the patient returned two weeks later complaining of a tenderness on biting which necessitated her avoiding using the tooth. She had some sensitivity to cold stimuli but this had settled a few days before the unscheduled appointment. Clinical examination revealed nothing untoward and so the patient was reassured but advised to return if things did not settle. Unfortunately, as the same pain on biting was persisting, she returned a fortnight later. Clinical examination revealed that 16 was tender on application of a Tooth Slooth and when pressure was released when the tooth was squeezed. The diagnosis was therefore made of cracked cusp syndrome most likely precipitated by stresses caused by the polymerisation shrinkage of the resin composite. The patient was advised that the restoration should be replaced in an attempt to remove any stresses within the tooth tissue.

At a subsequent appointment, local anaesthetic was again administered, rubber dam placed and the restoration removed (Figure 2). A sectional matrix system (V Ring, Triodent) was placed, the cavity was etched with Scotchbond Universal Etchant (3M ESPE) for 15 seconds (Figure 3).

The etchant was washed using water from the three-in-one syringe for 15 seconds and lightly air dried leaving a glassy dentine surface. Adper Scotchbond 1XT (3M ESPE) was applied, air thinned and cured for 20 seconds. As before, no lining was considered necessary as the bonding agent would seal the dentinal tubules. Filtek Bulk Fill Posterior (3M ESPE) was placed into the cavity in a single increment, contoured before being light cured for 40 seconds (Figure 4).

The restoration was grossly finished using diamond finishing burs after the sectional matrix had been removed (Figures 5 and 6). The rubber dam was removed, the occlusion checked and the restoration finished and polished (Figure 7).

The patient was reviewed at her routine six-monthly dental examination four months later. She had no complaints as the symptoms of pain had resolved completely and very quickly after the appointment to replace the conventional posterior resin composite restoration with the bulk fill product. The patient has been reviewed for her routine dental examination six months subsequent to this and the tooth remains asymptomatic and signless.

### Discussion

This case is interesting as, in many respects, direct comparison may be made between both the original appointment and the subsequent remedial appointment as the procedure performed was largely identical. The operator, the method of anaesthesia, timing and placement of rubber dam, burs, sectional matrix system, etch, bonding agent and method and instruments used to finish the restoration were the same at both appointments.

The only differences were that a bulk fill product was used instead of a conventional posterior resin composite and the former product was placed in one increment by definition. The placement of the conventional resin composite could be viewed as a "control" and a direct means of comparison to the new bulk fill product.

It is known that stresses may be incorporated into the system as a result

Continued »

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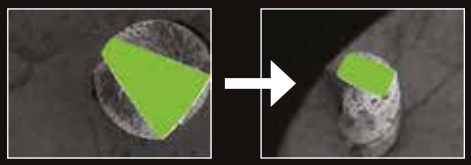

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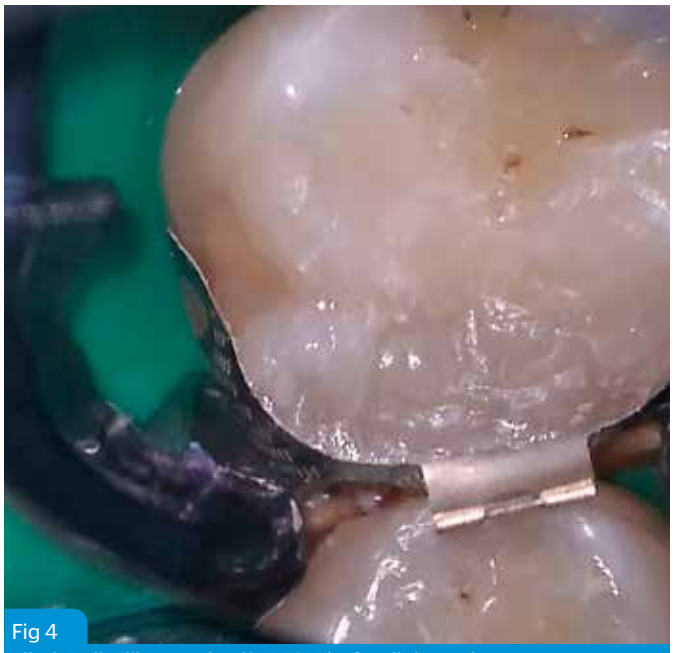

Fig 4
Filtek Bulk Fill Posterior (3M ESPE) after light curing

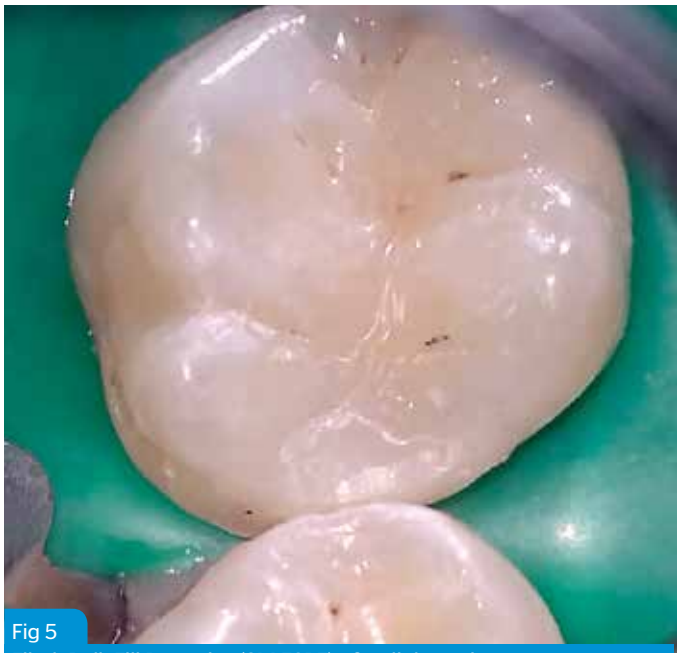

Fig 5
Filtek Bulk Fill Posterior (3M ESPE) after light curing

From previous page »

of polymerisation shrinkage which occurs when the resin composite is cured [1]. In this case, these stresses had precipitated signs and symptoms of incomplete fracture of the tooth structure (cracked cusp syndrome) despite its meticulous placement in the first instance. Bulk fill resin composites were developed to reduce these stresses and simplify and so quicken their clinical placement. This due to the manufacturer making modifications to the constituents of the material.

In the case of the product used in this case, BisGMA (the most commonly used monomer in resin composite products) has been omitted in favour of other monomers such as ERGP-DMA, urethane dimethacrylate (UDMA) or 1,12-Dodecane dimethacrylate (DDDMA) [11]. UDMA is relatively low-viscosity, high-molecular weight monomer which means that there are fewer reactive groups and so the volumetric shrinkage is minimised. Furthermore, the stiffness of developing and final polymer matrix is decreased but a tough, highly cross-linked network is still created.

DDDMA provides a high-modulus resin with good flexibility and impact resistance. This monomer cures quickly and exhibits a low exotherm and low shrinkage. The omission of BisGMA means that bisphenol A is, by definition, absent following concerns over its potentially oestrogenic side effects such as breast and prostatic carcinomas and male infertility. Two other monomers have been incorporated in the resin system which work in combination to reduce polymerisation stresses [11]. One is a high molecular weight aromatic dimethacrylate (AUDMA) with a reduced number of reactive groups. This moderates the volumetric shrinkage and the stiffness of the developing and final polymer matrix.

Another class of compounds called addition-fragmentation monomers (AFM) work in combination with AUDMA to decrease the shrinkage stress. These methacrylate molecules react into the developing polymer by forming crosslinks between adjacent polymer chains. When stressed during polymerisation, these molecules may break or fragment so providing a means for relaxation of the developing polymer network and so stresses are relieved.

These fragments also react with each other or other nearby reactive sites in a less stressed environment as the polymer develops. This process goes to completion maintaining the physical properties of the polymer as the conversation is the same but with greatly reduced polymerisation stress. This was well illustrated in the present case with almost immediate resolution of the patient's symptoms of pain.

The bulk fill product was placed in one increment as the cavity was shallower than 4mm. To enable light to fully penetrate through the material to permit an increased depth of cure, the manufacturers may utilise three strategies to achieve this:

1. Lower the filler content and/or increase the filler particle size
2. Modify the resin to increase its translucency
3. Use a different photoinitiator system.

The filler used in Filtek Bulk Fill Posterior (3M ESPE) is a silicon/zirconia nanofiller which conveys good wear resistance, increased strength, excellent polish retention and favourable handling. The total inorganic filler loading of approximately 76.5 per cent by weight (58.4 per cent by volume) [11]. This may be compared to the filler loading of a flowable resin composite which is approximately 65 per cent by weight.

This means that the second generation of bulk fill products of which Filtek Bulk Fill Posterior (3M ESPE) is an example, can be used to restore the entire cavity without the need for a veneering layer using a resin composite

**"The higher filler load has been possible without any detrimental effect on light attenuation"**

Continued »

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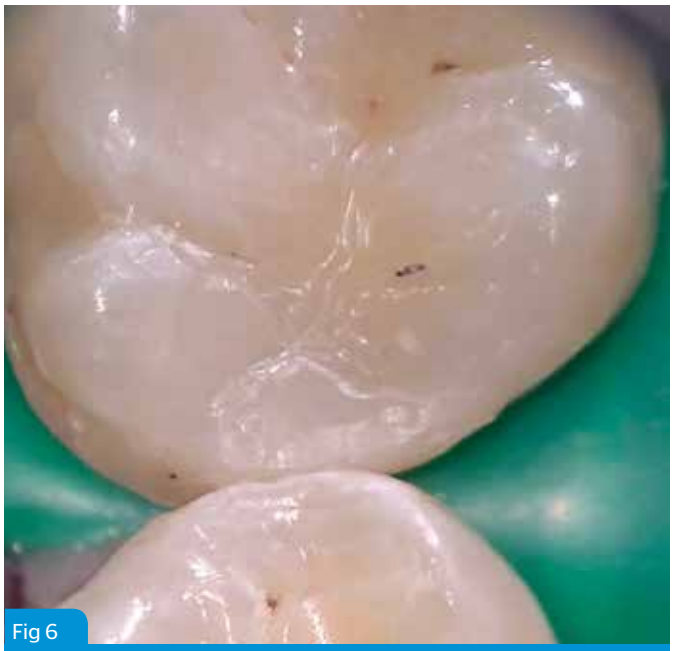

Fig 6
A higher magnification photograph, note the good contact area

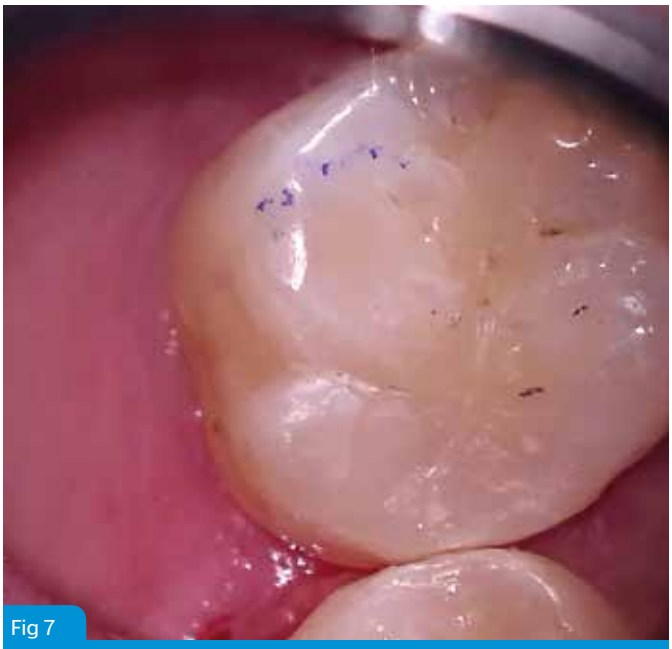

Fig 7
The completed 16DO Filtek Bulk Fill Posterior (3M ESPE)

From previous page »

indicated for use in the posterior region which is necessary with the lower viscosity products [12] as they have inferior mechanical properties due to their lower filler loading. Due to other modifications in the chemistry of the material discussed elsewhere in this paper, the higher filler load has been possible without any detrimental effect on light attenuation.

Bulk fill materials tend to be more translucent to permit increased light attenuation through its mass. The manufacturer of the product used in the present case describes the material as semi-translucent [11].

As can be seen in Figure 7, the aesthetics of the cured material are acceptable but a slight mismatch in shade is evident between the resin composite and tooth tissue.

This is considered advantageous by many clinicians because, if the restoration requires to be subsequently removed, the tooth tissue may be more easily identifiable and so may be preserved [6].

Many of the bulk fill products available on the market use photoinitiators which have a higher visible light absorption rate which allows increased quantum efficiency. In simple terms, this means that a lower quantity of light (photons) is required to trigger the polymerisation free radical chain reaction. This results in improved light-curing performance and an increase depth of cure.

These modifications to the chemistry of this product have allowed the placement of Filtek BulkFill Posterior (3M ESPE) in one increment which greatly simplified and quickened the clinical procedure.

## Conclusion

This case illustrates that an alternative low-stress material (so-called bulk fill) may successful resolve symptoms caused by polymerisation stresses when conventional resin composite is cured as it exhibits markedly reduced polymerisation stresses.

Consideration should be given to selecting one of these bulk fill materials in preference to a conventional posterior resin composite material when working in the posterior region of the mouth, not only in terms of stress reduction but the clinical procedure is simpler and quicker.

## Conflict of interest/ commercial interests

The author denies any commercial interest in any of the dental products or dental companies mentioned in this paper. ■

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# The veneer revolution

## A new generation of plastic veneer templates means that porcelain is no longer the automatic choice, says Jeremy Cooper


Fig 1
UVeneer templates arranged in racks

According to the Oxford English Dictionary, one definition of revolution is: "a dramatic and wide-reaching change in attitude". For decades the porcelain veneer has reigned supreme and the use of other materials for veneering teeth has received little support. Etching of enamel had been demonstrated by Buonocore in the late 1950s, but it was not until as recently as 1982 that Simonsen and Calamia demonstrated that, by etching porcelain with hydrofluoric acid, porcelain could be bonded to enamel with composite resin[1].

This discovery led to dentists suddenly being able to transform a patient's appearance with a relatively minimally invasive technique. Initially there was a debate to whether tooth preparation was necessary but, over time, it was generally accepted that the tooth was prepared before construction of veneers, otherwise the tooth appeared a little over-contoured. Obviously, with a peg-shaped lateral incisor, tooth preparation might be minimal or not necessary. Direct composite veneers have always been part of the dentist's armamentarium but have been provided as either a provisional restoration or on the grounds of economics.

The preparation of teeth has attracted some controversy. Incisal coverage or removal of contact points are two areas where dentists differ in their approach. In fact, there is a metaphorical fine dividing line between a veneer and a "veneer crown", depending on one's point of view, in teeth that have been prepared towards the palatal margin and where the contacts have been removed.

New manufacturing techniques have allowed porcelain veneers to be made extremely thin and so negating the need for tooth preparation in many cases (e.g. Lumineers). Whitening or dental bleaching has concomitantly developed over the past few decades, and has become more predictable.

**"Direct composite veneers have always been part of a dentist's armamentarium"**

In a large number of cases this should mean that the need for full-mouth veneers is reduced. Sadly, this is not the case and has led to the term "porcelain pornography" being coined by Professor Martin Kelleher[2] with regards to unnecessary restorative dentistry being performed to enhance a patient's appearance.

Furthermore, while on the face of it veneers seem very simple to perform, they are extremely technique sensitive and demanding. Inappropriate case selection, over preparation, over contouring, shade errors and poor execution of bonding techniques are just a few

Continued »


### ABOUT THE AUTHOR

Jeremy Cooper qualified from the London Hospital in 1982 with BDS (Hons). He worked as an associate from 1982-89 in London and the Home Counties. During this time he also held the position of dentist for the Chalfont Centre for Epilepsy.
In 1989 he opened a squat practice in Salford, Manchester where he currently practises. In 1992 he was awarded the Diploma in General Dental Practice from the Royal College of Surgeons.
He has a mixed general practice and, since 2008, has held a challenging position treating patients with alcohol and drug-related problems in a general practice setting.
In 2012, Jeremy was made a Fellow of the International Academy of Dental Facial Esthetics in New York.
He has published numerous articles on a diverse variety of subjects including management issues, dental aesthetics, dental emergencies and restorative dentistry. He is regular contributor on GDPUK and has lectured both in the UK and abroad. He is a member of the BDA and the Faculty of General Dental Practitioners.
He is married to Gill and has three children. His interests range from music, theatre, Manchester United, Jaguar cars and most important of all the amber nectar... whisky.

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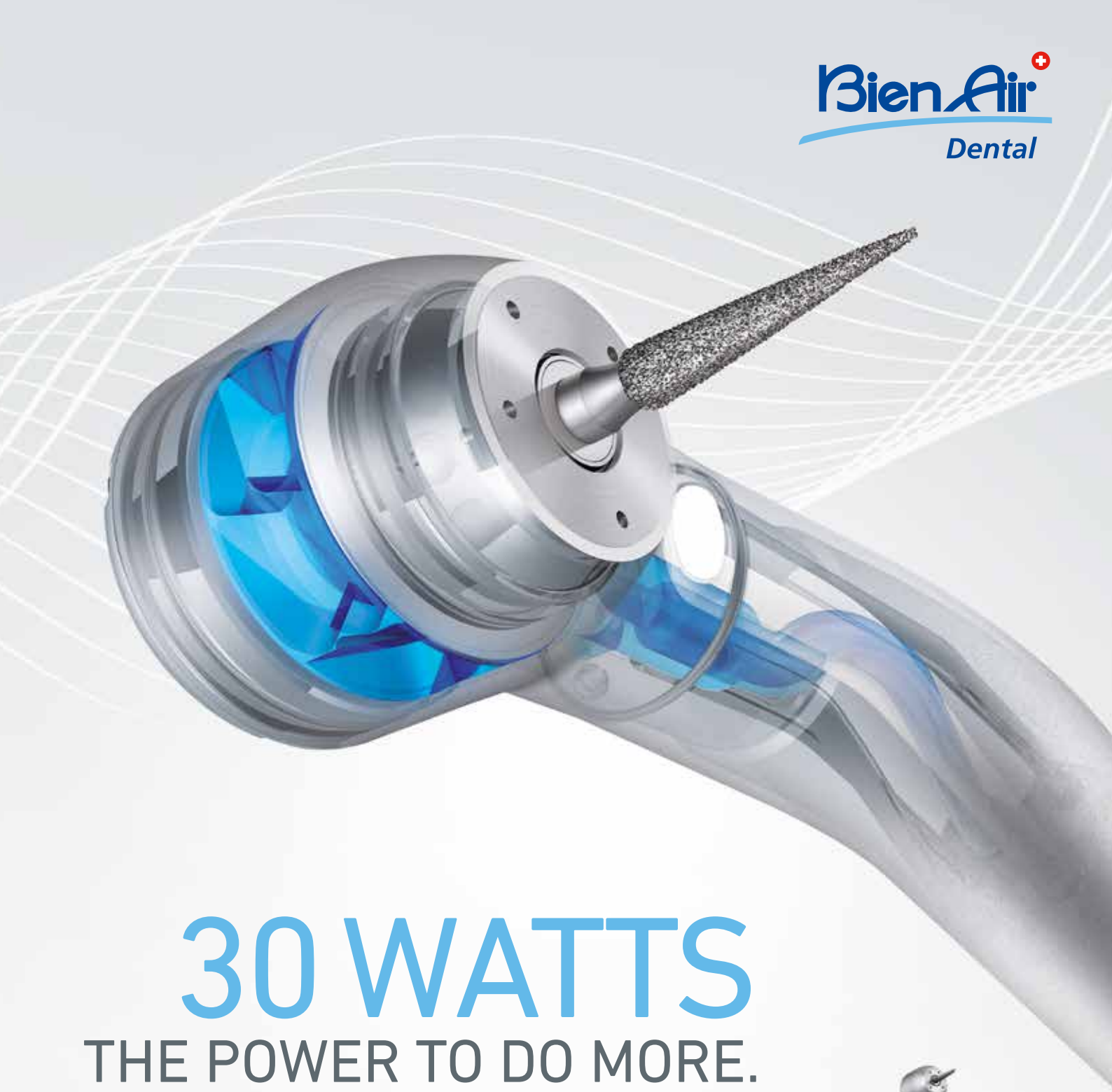

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Fig 2
A middle-aged lady presented with a very white and unsightly porcelain veneer

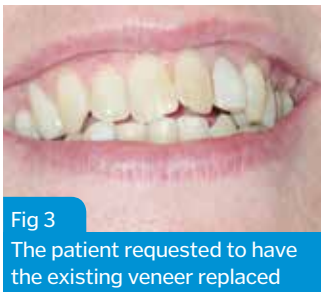

Fig 3
The patient requested to have the existing veneer replaced

Fig 4
Old veneer is removed

Fig 5
Air abrasion is used on the labial surface of the tooth


Fig 6
Bonding agent is applied to the tooth surface

From previous page »

## "No longer should the automatic choice be porcelain and serious consideration should be given to UVeneer"

of the problems that have plagued the provision of porcelain veneers.

Composites and bonding techniques have exponentially improved from the original materials developed in the 1960s and 70s. Microfills, hybrids, nano hybrids along with multi-generation bonding agents has meant that both longevity of restorations and aesthetics have improved dramatically. In the past year or so a template system for use with composites has been introduced to the market, the UVeneer (Ultradent). It was developed by dentist Dr Sigal Jacobson [3], and has given the clinician more choice when providing definitive veneer restorations. No longer should the automatic choice be porcelain and serious consideration should be given to the UVeneer as an alternative.

UVeneers are fully autoclaveable plastic templates that are available in two sizes, large and universal (Figure 1). They are arranged in racks, from first premolar to first premolar, for both arches. When used with composite they block out the oxygen inhibited layer, which gives a harder more colour-stable surface with an unrivalled gloss. The advantages and disadvantages of the UVeneer are outlined below:

### Advantages

- One visit
- Once mastered, technique is simple and repeatable
- No laboratory costs
- Shade changes easily made as necessary at time of visit
- Only necessary to trim margins and no need to polish
- Enhanced physical properties to outer surface and therefore potentially longer lasting than a direct restoration without a template
- Easily repaired or renewed
- Time?
- Cost to the patients.

### Disadvantages

- Multiple units are demanding
- Wear incisally and labially/buccally
- Staining
- Longevity less than porcelain/ceramics?
- Two sizes enough for all cases?
- Patient acceptance as opposed to conventional porcelain/ceramic.

The time element is variable but experience as well as the individual complexity of the case will determine this factor. Given that only one visit is required and there is no temporisation required, the time element may work in favour of the UVeneer when compared to porcelain. The physical properties of composite have improved dramatically since the 1970s, but it would be a bold statement to make that they rival porcelain in all aspects.

With exceptionally large or small teeth the UVeneer is not suitable, but suffice to say it can be used for the vast majority of cases. Multiple units can mean lengthy appointment times, which with porcelain is spread over two appointments. Wear due to abrasion or attrition may occur over prolonged periods and may be a deciding factor in the choice of material.

### Clinical technique

A middle-aged female presented with a very white veneer, and wished to have it replaced (Figs 2 and 3). She had no desire to whiten the rest of her teeth but rather wanted the veneer to match her existing teeth. The veneer was removed and the preparation modified. It will be noticed that some veneer cement is still present adhered to the preparation (Fig 4). Air abrasion is utilised and, consequently, the necessity to completely eradicate every vestige of bonding material is negated (Fig 5).

The choice of template is easy to make as for every anterior tooth it is either universal or large. The tooth is etched and bonded in the usual fashion and either metal or clear matrix strips are used to prevent overhangs

Continued »


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Fig 7
Flowable composite is placed on the inner surface of the UVeneer template

Fig 8
A thin layer of enamel composite is then laid upon the flowable composite

Fig 9
After applying the dentine composite to the tooth surface, the template is carefully seated before removing excess material

Fig 10
After light curing, the template is removed and a finishing bur can then excise any flash at the margin. Care must be taken not to touch the facial surface of the restoration

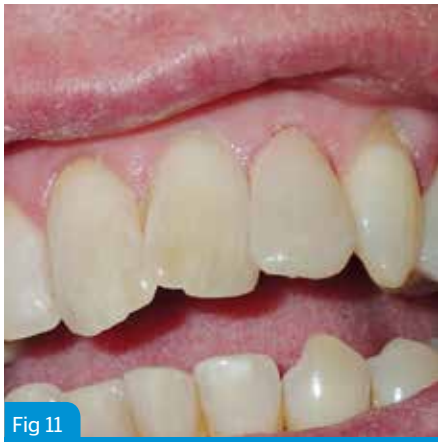

Fig 11
The completed restoration

Fig 12
A more natural and aesthetically pleasing veneer

From previous page »

or bonding to the adjacent teeth (Fig 6). For optimal results, a small amount of flowable composite is placed onto the inner surface of the template chosen (Fig 7). Directly onto the flowable composite a small amount of enamel composite is placed and spread out thinly over the surface of the template, with a flat plastic instrument (Fig 8).

Dentine composite is then applied onto the tooth and spread over the surface, before placing the template directly onto it. The excess is removed with a probe, with care being taken not traumatise the gingiva and cause it to bleed. It is important to ensure excess material is removed, as this will mean quicker and easier finishing later (Fig 9). The tooth is subsequently light cured.

If in any doubt to the health of the gingiva, ideally delay the procedure until this has improved or, at the very least, cure the restoration first before finishing as the margins would be contaminated with blood or gingival exudate. There is also a vertical line on the outer surface of the template to aid the placement vertically on the long axis of the tooth.

**"It is possible to use a single shade dentine composite rather than separate dentine and enamel shades"**

There are many enamel and dentine composite systems on the market and, in this particular case, VOCO Amaris was used, with the added advantage that a highly translucent flowable is available with the system. It is possible to use any flowable composite, as the layer is so thin as to have very little influence on colour. Furthermore, it is possible to use a single shade composite rather than separate dentine and enamel shades as with conventional restorations, but for optimal aesthetics the latter method is preferred.

The template is pulled off the composite after curing (Fig 10) and, after careful cleaning, can be autoclaved and reused. There is no need to polish the facial surface of the finished restoration. A fine finishing diamond bur is all that is required to remove excess restorative material (Figs 11 and 12).

## Conclusions

As with any new technique, there is a learning curve and the UVeneer is no different. The UVeneer can be used to provide "facings" for temporary or provisional restorations. If a tooth is lost whether from periodontal disease, trauma or an extraction, the UVeneer can provide aesthetic form to an immediate pontic. There are obviously many other scenarios where the Uveneer might prove useful. Once proficient with the technique, the question whether to use porcelain or a UVeneer and composite becomes a foremost consideration when providing veneers. ■

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3) Jacobson S. Direct Veneers Just Got a Whole Lot Easier. Dentistry Today, Aug 2014

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# Translucent sequential tooth positioners

## SmileTRU appliance offers unique ability to differentiate between dental and skeletal malocclusions, and to alter treatment accordingly

The first tooth positioner was originally developed to be used as a finishing technique following conventional fixed appliance therapy. The teeth were cut from the models and reset by hand much like a conventional denture 'set up'. A mould was then made around the reset case and injected with various types of elastic materials. All of the teeth were moved at one time into their new relationship. This technique greatly limited the amount of tooth movement that could be obtained from the positioner and could be very painful for the patient.

The next advance occurred with the use of vacuum-formed clear tooth positioners. The teeth were still hand set into a new relationship, but were aligned in a series of sequential tooth positioners. This technique required new impressions to be made every six weeks or so due to the inaccuracy of setting the teeth by hand.

The new technology of three dimensional scanning, imaging, and 3D printing has taken the use of sequential tooth positioners to another level. More complex cases can now be addressed in terms of their total correction and the need for additional in treatment impressions has been significantly reduced.

We are all aware that the gold standard for moving teeth efficiently is with metal brackets and wire, so why would people opt for clear positioners instead? Here are

just some of the reasons a patient, especially an adult patient, would consider clear positioner treatment as a viable alternative to traditional brackets and wire:

1. Comfortable for the patient to wear
2. Virtually invisible, no one will know you are having treatment
3. No dietary restrictions during treatment
4. Removable for eating, drinking and oral hygiene
5. Minimal impact on the patients daily life.

Many different systems employ digital treatment planning and additive manufacturing technology, however, the SmileTRU appliance is unique in its ability to differentiate between dental and skeletal malocclusions, and to alter the treatment accordingly.

For example, midline discrepancies can be dental or skeletal. The maxillary mandibular over-jet can be a dental protrusion of the upper teeth, or a skeletal retrusion of the mandible. Dental crowding is frequently the result of underdeveloped arches. The SmileTRU system allows the doctor and the patient to choose the treatment best suited for their individual situation.

There are four different levels of SmileTRU therapy.

### Level one

This level treats only the six anterior teeth upper and/or lower. Space to align the teeth is acquired by correcting torque and angulations as well as by inter-proximal reduction (IPR). This level does not change the patient's posterior occlusion.

### Level two

This level involves resetting teeth from the second bicuspids forward. The advantage of treating at this level is any required IPR can be distributed over 10 teeth in each arch as opposed to only six teeth. This level still does not change the patient's original posterior occlusion.

### Level three

Levels one and two are generally there to address the increased demand in cosmetic or short term orthodontics. Level 3, although a more complex treatment is still within the realms of most GDP's.

Accreditation for levels 1, 2 and 3 is FREE and achieved via a 25 minute video which can be viewed for free in the comfort of your own home or surgery at a time that best suits you. Once viewed, to become accredited is a simple phone call.

### Level four

This level introduces other appliances to be utilised to pre-treat cases before finishing in SmileTRU clear positioners for either functional jaw correction or arch development.

To become accredited for level 4 requires the attendance at out SmileTRU Advanced one day seminar with Dr Skip Truitt. Course details and dates are all available at www.tripleodentallabs.com

The doctor should provide the SmileTRU laboratory with the following:

### Levels one to three

- Upper and lower models or impressions that include clear definition of the terminal tooth in each of the four quadrants
- Bite registration in the patient's functional centric relation

Continued »

Continued »

- Any relevant medical and dental history
- A completed SmileTRU laboratory docket.

**Level four**
(As above but with the additional records below)

- Lateral cephalometric X-ray. For a small additional fee, SmileTRU will trace the X-ray and evaluate the tracing as part of the initial diagnostic work up
- Panoramic X-ray. Periapical X-rays should also be made of any endodontically treated teeth and of bridge abutments to determine if the tooth is ankylosed. Pre-existing bridges usually require sectioning
- Intra oral and extra oral photographs.

The doctor and the patient then have the option of choosing a treatment level, or requesting from SmileTRU the various levels of therapy that may be available for the case.

The upper and lower positioners are provided to the doctor in sets of six. For example, A-Upper 1 through 6, and A-Lower 1 through 6. The positioners are usually advanced every two weeks for the next number in the series. Therefore, each series represents three months of therapy. Level one cases frequently stay within the A-series while level two cases usually extend into the B-series. The more complex levels of therapy move into the C-series and D-series. The clinician should always keep the upper and lower positioners in corresponding sequence.

All of the positioners are returned on the fabrication model. This allows the doctor to make a new vacuum positioner in office should an appliance break or be lost. In addition the patient can see their progress on the various models.

Some cases require composite attachments to be placed on certain teeth for additional retention or to help with rotation/angulation. When this occurs, an attachment matrix is included with the starting A-Series. The clinician selects the matching shade of composite for the matrix and acid etch bonds the appropriate attachments before fitting the first positioner.

Also included with the A-series is an IPR chart. Most IPR is performed at the start of the case. Some of the more complex cases will require additional in treatment IPR. When this occurs, another IPR chart will be included with the appropriate positioners.

Patients are instructed to remove the positioners when eating, when drinking anything other than water, and for hygiene. Maximum wearing of the positioners reduces treatment time and the need for an in treatment adjustment.

Cases that require pre-treatment must be stabilised prior to starting the SmileTRU portion of the therapy. This is accomplished by placing vacuum retainers following the pre-treatment. These retainers are worn for a minimum of two weeks before the impressions are taken for the SmileTRU appliance.

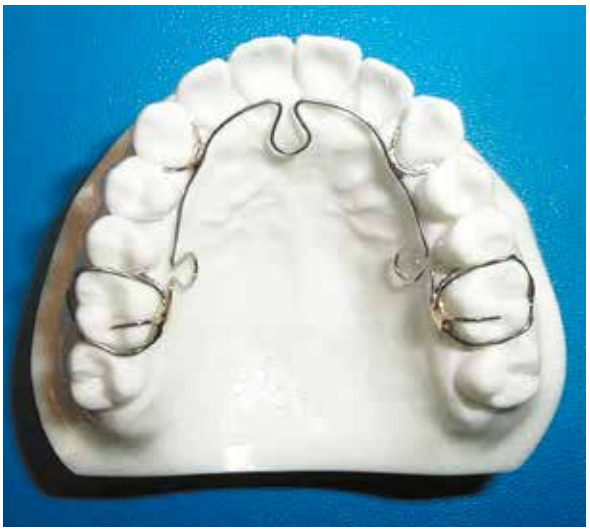
Retention is accomplished by the patient simply using the final positioners in the series as retainers. You now also receive a free removable retainer on request at the end of treatment for all levels of SmileTRU. They will be used to a tight feeling when the positioner is active and should they feel this when they put their retainer in. It acts as a warning bell to tell them that things have moved and to increase the time the retainer is worn.

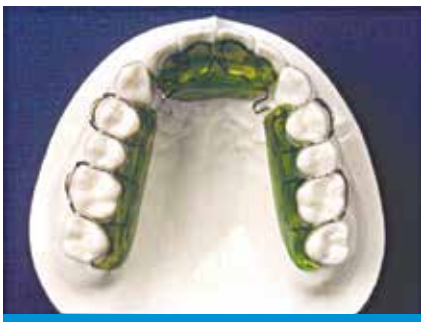
The patient would ideally wear the retainer full time for a month following treatment and then go down to night time wear only. Alternatively, a bonded retainer may be suitable for the patient and the laboratory can supply a custom made bonded retainer for your patient on a placement jig for your ease of fitting.

If you are treating at level three or four and the treatment changes the patient's occlusion the case may require Advanced Functional Retainers. These retainers are fabricated from new final impressions and result in an additional laboratory fee.

The patient wears the advanced functional retainers full time for the first 90 days following active treatment removing them only for eating and hygiene. The attachments remain on the teeth during this first 90 day period. The attachments are then removed and the patient continues full time wearing of the retainers for an additional 90 days.

Following the first six months of full time retention the patient wears the retainers at night only. Most patients can slowly sequence out of the night time wearing to once or twice a week. Indefinite partial night time retention is usually required to maintain the perfect final relationship. ■





The ALF (Advanced Lightwire Functional) (pictured left) or the RN-Sagittal appliance (above) can both be used to develop the arch where required. Both appliances are low profile and will have a minimal impact, if any on speech and cannot be seen easily when worn

**It acts as a warning bell to tell them that things have moved and to increase the time the retainer is worn**

*Additional information can be found at www.SmileTRU.com or by calling John Marchant on +44 (0) 121 7020 450. SmileTRU is only available through accredited dentists or orthodontists. Once a doctor is SmileTRU certified, his or her name is placed on the international referral system.*

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As Benjamin Franklin once said: "An investment in knowledge pays the best interest". Today, technology plays a fundamental role in the dental sector. However, an unwavering pursuit of knowledge is required to harness these groundbreaking technologies, and only following this road can you reach high-quality results.

Your ideal partner stands by you even in the quest for knowledge. They take you by the hand and help to refine your abilities, helping you master your working tools to perfection, while also giving you room to grow as a human. It is not important that you are a beginner or an experienced dental technician. Your ideal supplier must share your passion and values. Your ideal partner knows your needs and provides training courses tailor-made for you.

Based on this partnership philosophy, Zirkonzahn offers dental technicians Die Zirkonzahn Schule – The Zirkonzahn School. The Zirkonzahn School is an educational programme conceived by Enrico Steger, MDT, founder of the worldwide dental tech company Zirkonzahn (South Tyrol, Italy), run by Steger himself together with his son Julian Steger, MDT. According to Enrico Steger, "learning means repeating". He believes that excellent results only arise from an ongoing and self-motivated pursuit of improvements and constant exercise. The more knowledge and skills a person has, the more virtuous he will become.

However, virtue requires more than the mere adherence to a working method: it requires the willingness to cope with one's personality and achievements, to train one's perception, to develop a cultural understanding and to internalise work ethics and traditions proven over generations. The educational programmes of the Zirkonzahn School include both schools and courses, and combine a sound dental technical teaching with a school of life and culture. These trainings are for all walks of life: they aim at supporting both young and expert dental technicians in their personal and professional growth, by means of a diligent and complete education which focuses both on craftsmanship techniques and on digital technology.

### Choose your training at the Zirkonzahn School

Most of the Zirkonzahn Schools take place in the meadows of the company's homeland, South Tyrol, embraced by the magnificent Alps, and all classes are held by expert dental technicians trained in-house. The five schools included in the programme are a combination of the schools of life and culture, and have been conceived considering the specific and differentiated targets' needs. They last from five days to several months and, in some cases, they are run in an international ambiance.

The Military School, the Safari School, the Heldencampus, the Ranger School and the brand new Forest School are the educational programmes conceived by Enrico Steger. A wide range of practical courses for every taste and level of expertise is also available. Dental technicians interested in improving their skills in the use of the milling machines and the software can subscribe to the CAD/CAM milling courses, where they will also learn useful tips about workflow organisation and maintenance of the devices.

For those who aim at improving their design skills in the software and learning more about material diversity and different digital approaches, CAD & Applications courses are the perfect solution. Dental technicians who are mostly interested in aesthetics and complementary techniques can finally find an answer to all their questions at the applications courses.

The courses are constantly updated and expanded according to innovations by the research team of the company's dental laboratory. Every new solution is implemented into the training programmes through intensive sessions, in which experts and participant can exchange ideas and learn together in a collegiate atmosphere.

Such education programmes are the centrepiece to Zirkonzahn's puzzle of products, which include hardware, software solutions and tested materials, completely integrated with each other for a smooth digital workflow. The company's technical support team is also available six days a week in order to help you in troubleshooting.

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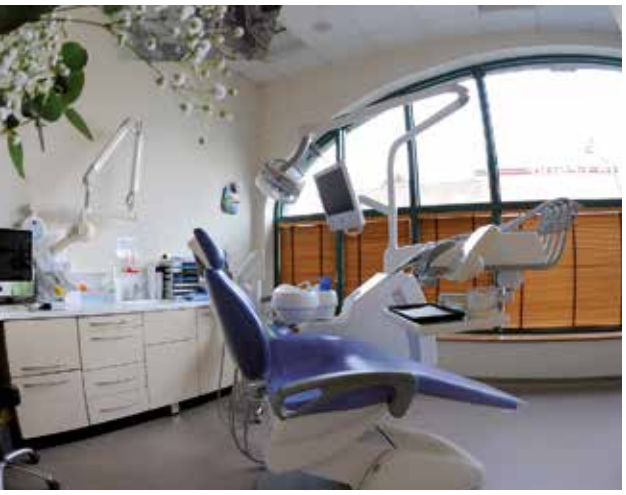

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PJ qualified from Cork in 1983 and has practised as a dentist ever since. He worked in Billericay and Wickford, Essex for a number of years before taking over the Kinsale practice in 1991. In 1991 he completed Dental Implant training with pioneers in the field including Professor David Harris at the Wellington Hospital, Harley Street, London and Professor Per-Ingvar Branemark in Gothenburg, Sweden, and has been placing dental implants in Kinsale, Ireland and Wickford, UK since. He subsequently completed a Masters Degree in Implantology from Warwick University in 2008. PJ worked extensively with Professor Stewart Harding during those three years. At the world renowned centre of excellence The Malo Institute, Lisbon he studied Teeth in a Day.

Qualifying in Cork in 1987, Janet spent 7 years working in general practice in the UK, until 1994 when she relocated to Kinsale with her husband and fellow dentist PJ and their young children. Since then, she has worked exclusively in general practice in Kinsale and enjoys the variety of general practice and the continuity of working in a tight knit community. Janet is currently completing a two year masters in Aesthetic and Restorative Dentistry in Manchester University. Janet concentrates primarily on digital smile design (DSD) cases and the CEREC crowns in a day cases.

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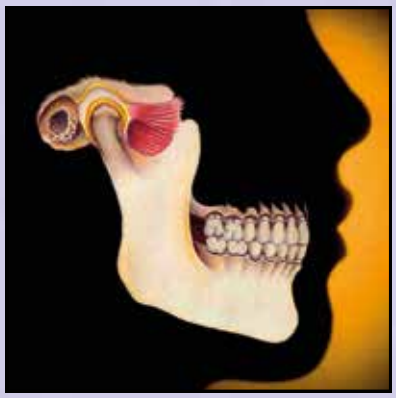
# Diagnosis and Treatment of T.M.D. Patients

**A definitive course dedicated to a simple and practical approach to T.M.J. therapy.**



**Speaker:** Dr J W "Skip" Truitt B.S. D.D.S.

**CPD:** 21 hours of verifiable CPD

**Venue:** The Hyatt Regency, Birmingham

**Dates:** 1st, 2nd & 3rd December 2017

**For Further Information And A Registration Form Call 0121 778 5494**

**This seminar will cover :-**

* Review the Anatomy of the head, neck and T.M.J.
* Diagnosis of internal and external derangements
* Classification of derangements
* Splint construction and adjustment
* T.M.J. medications and nutrition
* Physical Therapy - in office and at home
* Stabilization and finishing of the T.M.J. :-
    - (a) Orthodontics including the A.L.F. appliance
    - (b) Re-treatment of T.M.D. previous orthodontic cases
    - (c) Reconstruction and Adult Twin Block Therapy
    - (d) Equilibration
* Long term retention

The course was hard work but extremely practical. Skip has a way of compartmentalizing things which make it easier to understand. Anyone interested in T.M.D. who wants a comprehensive oversight of how to diagnose and treat these often difficult patients will find the course more than helpful. I really enjoyed it. What a great way to spend a weekend!

. . . . . **Philip J E Lang** L.D.S. R.C.S. (Eng), M.G.D.S, R.C.S.(Eng).

*This seminar is sponsored by Triple O Dental Laboratories*

**www.tripleodentallabs.com info@tripleodentallabs.com**

# It's called BRILLIANT for a reason

For the creation of quality indirect single tooth restorations, the BRILLIANT Crios from COLTENE is an ideal choice for anterior and posterior teeth.

To ensure first class results, the BRILLIANT Crios material combines all the advantages of COLTENE's innovative submicron hybrid composite material technology with those of a CAD/CAM fabrication process. The result is a reinforced composite bloc that guarantees high flexural strength for maximum resistance and low abrasion.


With the addition of a tooth-like modulus of elasticity to offer a shock-absorbing effect, BRILLIANT Crios is highly recommended for use in bruxism patients or implant-supported crowns.

There are a number of shades available in both high and low translucency, all of which blend extremely well to provide the ultimate natural-looking restoration.

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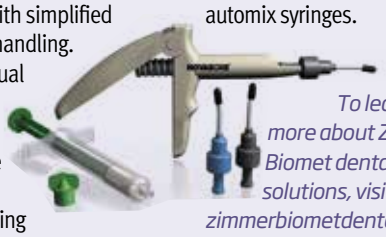
Fill-Up! is a fluorescent and radiopaque bulk composite which provides a perfect amalgam replacement and alternative to glassionomer cements and compomers.

Fill-Up! combines the advantages of resin-based composites with simplified and efficient handling. Owing to its dual curing properties, Fill-Up! can be administered in arbitrary filling depth of 10mm without the need of an additional covering layer.

Fill-Up! is a single layer technique with optimised sealing of the margins and minimal shrinkage plus reduced postoperative sensitivity. Available in universal shade and automix syringes.



*To learn more about Zimmer Biomet dental solutions, visit www.zimmerbiometdental.com*

## Planmeca latest innovations launched at IDS

Planmeca is expanding its CAD/CAM product range with a new light intraoral scanner – the 183 gram Planmeca Emerald. The new intraoral scanner is a small, lightweight, and exceedingly fast scanner with superior accuracy. It is the perfect tool for smooth and efficient chairside workflow.

The compact intraoral scanner makes intraoral imaging easy for the dentist and highly comfortable for the patient, whilst ensuring optimal ergonomics. The scanner's active anti-fog feature of its tip mirror ensures visibility is always clear. Infection control is impeccable with the scanner's autoclavable tip and seamless design.

This simple plug-and-play solution makes it easy to share between operatories. The dental unit integration enables hands-free operation with the foot control. The scanner is compatible with Planmeca Romexis and Planmeca PlanCAD Easy software suites for constant access to real-time scanning data.

*To find out more. Call +44 (0) 800 5200 330 or email marketing@planmeca.com*

*To book your free mobile showroom visit from PlanDemo, go to www.plandemo.co.uk*

## Enduring beauty with BRILLIANT EverGlow

To provide first class restorations to your patients, you need COLTENE's BRILLIANT EverGlow for guaranteed effortless and enduring results.

Using a mix of submicron barium glass fillers and pre-polymerised fillers identical in content to the resin matrix, the sophisticated and pliable universal composite can be easily applied to all cavity classes in both anterior and posterior teeth.

BRILLIANT EverGlow also offers longer gloss retention for long-lasting results and increased bonding strength for higher scratch resistance against intense chewing and abrasion stress.

On top of all that, it has a smooth consistency and good wettability for easy and convenient application without sticking to the instrument. You can rest assured that elaborately modelled cusps, ledges and contact points will remain intact immediately after application too.

*To discover the brilliance of COLTENE's restorative technology, get in touch by calling +44 (0) 1444 235 486, emailing info.uk@coltene.com or visiting www.coltene.com*

# The most intelligent toothbrush

Philips Sonicare reveals a new flagship innovation – the DiamondClean Smart – dubbed the world's most intelligent toothbrush.

The new brush uses unique connected technology to inspire and motivate patients to take better care of their oral health. It delivers exceptional oral care results by harnessing built-in smart sensor technology in both the toothbrush and brush heads and personalised coaching within the platform to help improve patient's brushing technique and ultimately achieve a healthier mouth.

The new brush seamlessly syncs with the Philips Sonicare app, giving feedback and guidance to empower them to proactively manage and improve their oral health.

DiamondClean Smart also has dramatic bathroom appeal with its matt black handle, black brush head and charge-in-a-glass technology. The brush can also be charged using a computer USB to top up while travelling.

*For further information on the latest Philips innovations, please call +44 (0) 800 0567 222 or visit www.philips-tsp.co.uk*

## Enter the world of digital dental production

Planmeca's new entry-level milling unit, Planmeca PlanMill 30 S, has been developed for dental businesses looking for an efficient, accurate, and cost-effective milling solution.

The high-accuracy unit has been designed for the chairside fabrication of metal-free dental restorations and appliances. The milling unit is equipped with a rotary axis for milling blocks of choice, and a fixed tool changer for three tools. The unit integrates seamlessly with Planmeca's intraoral scanners and Planmeca Romexis software suite.

*To learn more about the features for the Planmeca PlanMill 30 S, contact us on +44 (0) 800 5200 330 or email marketing@planmeca.com To book your free mobile showroom visit from PlanDemo, go to www.plandemo.co.uk*

# Looking to **sell** your **dental** practice?

# Looking to **buy** a **dental** practice?

## Dental Practices for Sale

County Kildare
Leasehold
Fully Private

3 surgeries
Room for expansion
Turnover €260,000

Excellent opportunity for an incoming purchaser to acquire this well established three surgery practice which is presented to the market due to the Principal wishing to reduce her responsibilities. Income is derived predominately from private fee per item treatments boasting plenty of opportunity to grow the business turnover and subsequent profits further. Close to the town centre the practice benefits from plenty of free parking and accessible transport links.

**Asking Price: €195,000**

County Wicklow
Leasehold
Mixed

1 surgery
High Adjusted Net Profit Margin
Turnover €269,788

This one surgery mixed practice comes to the market due to the current principals plans to relocate. The well established practice is close enough to commute from Dublin and is ideally located close to local shops and amenities. The vendor would consider staying on for a transitional period if required by the incoming buyer. Viewing highly recommended.

**Asking Price: €180,125**

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# Mastering implants in the aesthetic zone

## Experienced implant dentist Rob Oretti to present full-day course on aesthetics at Belfast Castle in September

Quintess Denta, in association with the Straumann Group, are thrilled to have secured Rob Oretti to deliver his course "Implants in the aesthetic zone... the keys to success". This full-day event takes place in the beautiful surroundings of Belfast Castle on Saturday 23 September. The course is strictly limited to a small group to allow for maximum interaction. This event sells out every time it takes place in the UK, which is a testament to the quality of the speaker.

**This course will cover:**

- Socket Preservation – What is the rationale?
- Immediate Implants – How to achieve predictable outcomes
- Bone Grafting – Protocols for success
- Soft Tissue Grafting – When to do it and how to do it
- Temporisation – Simple rules for great outcomes
- Peri-Implantitis – Effective treatment strategies.

Rob has designed this course with specific emphasis on how to avoid complications with implants in the aesthetic zone and how to deal with complications when they occur.

Speaking about the upcoming course, Rob said: "The goal is to create a harmonious aesthetic outcome around dental implants that mimics the surrounding dentition and soft-tissue condition. This is difficult to create and maintain long term. Bone remodelling and soft tissue recession are known adverse factors which can negatively impact upon the final long-term outcome and the extent of these changes are often considered unpredictable for the immediate implant approach.

"This presentation will discuss the critical factors associated with case selection; the relevance of the surgical techniques employed and a step by step surgical sequence demonstrating how post-operative changes can be significantly reduced on a predictable basis.

"Nevertheless, despite careful planning and execution, adverse outcomes can still occur and this presentation will also highlight the procedures that are required to correct compromised outcomes. Key skills areas for optimising aesthetic outcomes will also be discussed."

**Educational aims and objectives**

- To be familiar with the rationale for choosing differing implant treatment options with an emphasis on evidence based dentistry
- To appreciate the role of differing treatment strategies that are utilized (such as soft tissue grafting) to enhance the aesthetic outcome
- To be familiar with the procedural steps required to deal with and correct adverse aesthetic outcomes.

**About Rob Oretti**

Rob qualified at Kings College London in 1987. After working in an orthodontic practice in Colchester for four years, he moved to Newbury, Berkshire. Rob then spent the next 14 years working in a private practice where he built a reputation for treating complex cases involving cosmetic, implant and orthodontic treatments. He has taught and mentored dentists on all aspects of cosmetic and dental implant therapies.

In 2006, Rob moved to Pentangle Dental Transformations, a purpose-built referral centre for cosmetic and complex treatments. Rob now spends his time between treating these referred patients and teaching.

Rob is currently a postgraduate tutor for the Oxford and Berkshire deaneries, a mentor and faculty educator for the Association of Dental Implantology, a mentor and international speaker for the International team of Implantologists, a Royal College of Surgeons examiner for the implant diploma (RCS Edin), as well as scientific director and president elect of British Academy of Aesthetic Dentistry. He presents regularly at scientific meetings and has published several articles on implant therapy. ■

*For more information or to book your place online, visit www.quintessdenta.com Neodent, a Straumann Group Brand is available through Quintess Denta. Call Ian on +353 (0) 1 691 8870 or +44 (0) 28 6862 8966 to learn more about what Quintess Denta can do for your practice.*

# Quintess Denta

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# **LuxaCrown:** The easiest way to long-lasting crowns.

From now on, restoring is child's play: With the new LuxaCrown you can make long-lasting crowns easily, quickly and cost-efficiently – directly at the chairside. The easy to make composite crown fits precisely, is highly aesthetic and shows a remarkable longevity. A LuxaCrown restoration could last for up to 5 years.* With this unique semi-permanent solution, you can offer your patients longevity with excellent results as a cost-efficient alternative to lab processed crowns.

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*In vitro study of LuxaCrown; N. Albrecht, S. Duy, Germany, FEB 2016