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JIDA

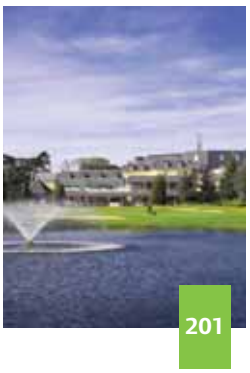
Journal of the Irish Dental Association
Iris Cumainn Déadach na hÉireann

IDA
irish dental association

ON GUARD

A GUIDE TO BEST PRACTICE

CONTENTS



MOUTHGUARD GUIDELINES
CENTRE PAGES

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References:
1. Docimo R et al. *J Clin Dent* 2009; (Spec Iss A): 17-22. **2.** Hamlin D et al. *Am. J of Dent* 2009; 22 (Spec Iss A): 16A-20A. **3.** Nathoo S et al. *J Clin Dent* 2009; 20 (Spec Iss): 123-130. **4.** Petrou I et al. *J Clin Dent* 2009; 20 (Spec Iss): 23-31. **5.** Recommended fluoride level (1350-1500ppm) for caries prevention in 'Delivering better oral health. An evidence-based toolkit for prevention.' 3rd edition, Public Health England, June 2014. * When toothpaste is applied directly to each affected tooth for one minute.

EDITORIAL

Prof. Leo F. A. Stassen
Honorary Editor

Analysis informs pre-Budget submission

In this edition, the Association lays out a well-thought-out and practical pre-Budget submission, mouthguard use is examined, digital workflow is explained, and IDENTEX is previewed.

Eighty-three per cent of all money spent on dental care in the Republic of Ireland is private, i.e., paid out of the pocket of the patient. This compares with a figure of just 36% of the income of medical GP practices. The figures are from the CSO System of Health Accounts for 2015. Another way of saying it is that of the €603m spent in dental practices in 2015, €501m of that was paid directly by patients. The balance was made up of €17m in insurance cover (VHI, etc.), €68m from the medical card scheme, and €17m from PRSI. A fuller analysis is provided on p184.

These figures provide the informed context for the Association to present its pre-Budget submission. The first of nine recommendations is to reform and expand the Med 2 Scheme. As this is the Scheme under which taxpayers can claim relief on their dental care expenses, it makes perfect sense to direct relief to taxpayers who are, as we have been saying, bearing 83% of the cost of dental care. By expanding the relief available to the marginal (from the standard) rate, or by expanding it to cover a wider range of treatments, the State can choose to allow citizens greater access to dental care. The other nine recommendations cover the PRSI Scheme, a new medical card scheme, the Public Dental Service (HSE), paediatric and neonatological care, orthodontics, promotion of oral healthcare, a sugar tax contribution to oral healthcare, and measures to reduce the cost of doing business.

The proposals are sensible, well thought out, logical and in the best interests of our patients. It is the essence of the lobbying efforts by our profession and details can be read on the members' pages.

Mouthguard policy

The Association is currently finalising its policy on mouthguard use in sport and other activities. Essentially, it states that mouthguards should be used by anyone who plays contact sports or takes part in any activity that might pose a risk of injury to the mouth. This is because the mouthguard acts as a cushion which spreads the impact of any blow and prevents violent contact between the upper and lower teeth. The proposed policy also states that a custom-made mouthguard made by a dentist from an impression of a patient's teeth offers the best protection. In this edition, the *Journal's* Colm Quinn spoke with Margaret O'Malley (who is credited with persuading the GAA to adopt a "no mouthguard, no play" rule for Gaelic football) and also gathered information on the position of each of the major sports governing bodies in Ireland. A handy guide on mouthguard use (by type of sport) for GDPs to use with their patients is published in the members' pages.

Clinical feature/peer-reviewed

Our clinical feature in this edition is an introduction to the digital workflow in fixed prosthodontics from Dr David McReynolds. It states that digital technology offers an optimised method of fabricating restorations. David is one of several new members of our editorial board who are continuing a great tradition of contributing to the profession through the pages of the *Journal of the Irish Dental Association*. We are also grateful to Dr Makiko Nishi and her colleagues in University College Cork for their paper on plaque scoring.

IDENTEX 2017

The level of co-operation between the Irish Dental Association and the Irish Dental Trade Association has increased significantly in the last three years. This has been to the benefit of both parties. The *Journal* is a very direct interface between the members of the IDTA and dentists, and we have a healthy and symbiotic relationship. Without their advertising support, we do not have a *Journal* and without the *Journal*, access to every dentist on the island in one publication is not available. We appreciate the commercial support and understand the progressive role the members of the IDTA play in providing new and innovative ways of practising dentistry. IDENTEX 2017 incorporates the IDA's Autumn Meeting and we have a full preview of the event in this edition. Time spent at IDENTEX will be time well spent by any dentist.

PLAQUE CONTROL: 'GOOD' CAN BE BETTER

THE PROVEN ORAL CARE COMBINATION

A combined analysis of 29 clinical studies on essential oils has been published in the *Journal of the American Dental Association.*

This showed that after 6 months of using **LISTERINE®**, after brushing and inter-dental cleaning, **37%** of patients had at least half their mouth free from plaque, compared with only **5.5%** of those who just brushed and used inter-dental cleaning.[1]

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References
1. Araujo MW, et al. J Am Dent Assoc 2015;146:610–622.
2. Johnson & Johnson. Data on file.

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PRESIDENT'S NEWS

Dr Robin Foyle
IDA President

Representation and participation

The IDA and IDU continue to work to represent both new and established dental professionals.

VAT on associate fees

The topic of VAT on associate fees has been a concern for many practice owners, and IDA House has received many calls in relation to this issue. In response to a query from a member following a tax audit, the IDA sought assurances from Grant Thornton (who originally drafted the associate contracts for the IDA) that VAT should not be due on the fees that associates share with the practice principal. Grant Thornton confirmed that the contract as drafted, and until recently available on the IDA website, would not expose the practice principal to VAT as long as the procedures in the practice also worked in line with the contract. As this is a very serious issue, the IDA obtained a second opinion from a senior partner in indirect taxes in BDO, an internationally recognised accountancy firm. Again, BDO concluded that VAT would not be due on associate fees as per the contract. Both firms, however, stressed the importance of obtaining independent legal and accountancy advice before using any contract. We took the opportunity to update the associate contracts and the new contract (which is similar to the old one in most respects) is available on request from IDA House.

HSE and probity schemes

Ongoing discussions have been taking place with the HSE on a settlement subsequent to the failed Supreme Court action by the IDA. The HSE for their part would like the IDA agreement to introduce online claiming. For our part, we recognise that the imposition of FEMPI cuts and an unagreed probity scheme, among other things, has led to a breakdown in any workable relationship with HSE management. In order to improve this relationship, and to best serve the interests of our members I, along with the CEO, Honorary Treasurer and President Elect, met with the HSE to discuss our concerns. We explained that the current probity scheme does not have the support of dentists and does not conform to natural justice. The IDA would never be in a position to implicitly or explicitly endorse the current scheme. We fully recognise, however, that in any scheme where public money is spent, a robust agreed probity scheme should be in place that conforms to international best practice and natural justice. We are in favour of a suggestion that a joint consultative group (JCG) be set up between IDA representatives and the HSE to address this and other issues. The JCGs in the medical and pharmacy professions have been ongoing for many years and are generally working well. We await the response to our proposals from the HSE, and the Council of the IDU will issue guidance on whatever transpires.

Dental Complaints Resolution Service

The DCRS released its annual report on July 19, which received considerable media attention, in particular the worrying trend of online, DIY dentistry. Complaints were highlighted from people who went online to get DIY orthodontics and clip-on 'veneers'. As this is done, it appears, by non-dentists, it is outside the remit of both the Dental Council and the DCRS. Gullible customers of these online charlatans have no recourse in the event of problems. Dr Eamon Croke, in an interview in The Irish Times, made it clear that any dentists who even inadvertently become involved in any part of this 'treatment' will have the same responsibility as if they planned and completed the treatment themselves. A member has reported being asked to take an impression for a patient to 'take away', presumably so they could send it to one of the online companies. Therefore, dentists need to be very cautious not to be drawn in to an unforeseen situation that lands them at the door of a 'fitness to practise' hearing.

Care of the elderly

Dr Anne Twomey has been doing great work educating allied healthcare workers on oral health in the elderly, particularly in nursing homes. She has liaised with HIQA and the Irish Gerontological Society (IGS) to put oral care and oral health on the agenda for patients who have lost the ability to take care of their own oral health. Anne would welcome any papers that dentists have written on the subject so that they can be forwarded to the IGS for their upcoming conference at the end of September.

Non-Irish and recent graduates

As president of the IDA, I feel it is essential to have representation and participation from all sections of the dental profession. In recent years, A large number of dentists have come to Ireland who have graduated in other countries. They are all welcome and for the IDA to be a truly representative group for the entire profession, we need to encourage active participation in IDA structures from all who wish to get involved. The same goes for recent Irish graduates. As they find their feet in the profession, many of them could be forgiven for thinking that the IDA is for 'more established' dentists. Both these cohorts of colleagues would undoubtedly benefit from the many services that the IDA provides. To that end, Council of the IDU co-opted Dr Dina Dabic and Dr Rebecca Gavin (2016 graduate DDUH) at our last meeting. I look forward to working with them both.

Pre-Budget submission

The recent confirmation that household spending on dental care fell by almost 50% in the five years after 2010, taken with the massive cuts in State supports, means that oral health has suffered and we all see evidence of that in our practices. Given the clear signs of economic recovery, there can be no excuse for this Government delaying remedial action to stem the oral health crisis. That is why we have prepared a comprehensive pre-Budget submission and called for a cross-departmental approach to tacking the crisis. We have also circulated our proposals to opposition politicians and will be seeking your help in canvassing locally as our efforts intensify closer to the Budget.

Contractors entitled to same FEMPI deal as public servants

The Irish Dental Union has contacted the Minister for Health, Simon Harris TD, seeking equal treatment for dentists holding State contracts in the wake of the recent public service pay deal, which provides for the unwinding of cuts in salaries introduced under the FEMPI legislation.

Minister Harris was told that we estimate that the value of overall cuts applied by the HSE (noting the increase in the numbers of eligible medical card patients in the intervening years) could stand at over €150m. In view of the commencement of the process in 2013 whereby FEMPI cuts to salaries were unwound for HSE employees, and the recent public service pay deal, which provides for further unwinding of salary cuts, the IDU wants the Minister to confirm his intention to treat DTSS contract holders on a basis no less favourably than that applying to salaried staff.

The cuts concerned have been truly devastating as regards the income of dental practitioners and the impact on services delivered to patients, along with the fact that the State offers absolutely no support in the form of practice grants or allowances to dentists as would apply to medical doctors seeing the same patients. Clearly the Union feels that an entirely inequitable approach has been taken by the Department of Health to this issue for many years and we are pushing for the Minister to commence the unwinding of FEMPI cuts for DTSS contractors on an equivalent basis as has applied and will apply to State employees.

DCRS Annual Report Launched

At the launch of the DCRS Annual Report 2016 were (from left): IDA Honorary Treasurer Dr Eamon Croke; DCRS Facilitator Michael Kilcoyne; and, IDA Chief Executive Fintan Hourihan.

The Dental Complaints Resolution Service (DCRS) Annual Report was launched in Dublin on July 19. Speaking at the launch, IDA CEO Fintan Hourihan said that the Service had a settlement rate of over 50% last year, which shows the good work that Facilitator Michael Kilcoyne is doing. Michael spoke about worrying issues such as people ordering braces and teeth-whitening equipment online. The companies supplying these are not regulated by the Dental Council and when something goes wrong, there is nothing the DCRS can do. Michael advised people to always go to their dentist for any dental needs. He praised the standard of dental care in Ireland and said that most people will never have a complaint against their dentist. He also mentioned that more and more problems are now being resolved directly between dentists and patients.

Online dental register initiative welcomed

The Association has welcomed the announcement from the Dental Council that it intends to publish an online register for all dentists over the summer.

This initiative follows prolonged representations by the Association. The Council has said that it will publish a shortened version of the register to include the registration number, forename and surname, and primary dental qualification only. The home address of dentists will not be published. The Council has said it may consider publishing more information on each registrant in the future.

Until now, the Council has only published online the specialist registers for orthodontists and oral surgeons, and the Association has pleaded for many years for all dentists to be afforded the same treatment.

Commitments sought on filling of Chief Dental Officer position

The Association has contacted the Secretary General of the Department of Health to seek commitments regarding the filling of the position of Chief Dental Officer (CDO). We understand that it has been agreed that Dr Dympna Kavanagh has now been seconded for a further 12-month period to the CDO position and with the specific task of overseeing the publication of the long overdue Oral Health Policy Plan document.

While we welcome prioritisation of early publication of the oral health policy and look forward to meeting representatives of the Department, the Association wishes to reiterate its view that the substantive filling of the position of CDO must be by way of competition, as is required for posts of this seniority within the civil service.

The Association is also anxious that the job description for the CDO position be consistent with international equivalents for a post of this type, and should be published in a transparent manner. We look forward to seeing real progress in the coming year towards early publication of the oral health policy and an accompanying action plan.

The Irish Dentists Approved Retirement Savings Scheme has been enhanced in the last year.

A year of progress

We at Acuvest have been working with the Trustees on improving the Irish Dentists' Approved Retirement Savings Scheme over the past 12 months and we are pleased to report a short summary on our progress and enhancements to date.

- A new scheme booklet, investment booklet and application form, focusing on simplifying the key messages for members.
- A new administration platform that offers online access to members for valuation information and fund switching purposes.
- A new default fund for dentists that the Trustees (who are mainly practising or retired dentists) have deemed to be suitable for the average dentist without significant investment experience.
- A new refined suite of fund options sufficiently broad to allow dentists to make individual investment choices.
- Cost savings at fund and administration level.
- In addition, the scheme has improved visibility and member touch-points by regularly advertising in the *Journal of the Irish Dental Association* and attending dental shows and seminars where appropriate. We have run wine raffles for those who visited our stands at these events which has proved popular and an excellent way to meet and greet new people in the dental world.

Our aims in meeting attendees served to:

1. Increase awareness amongst the dental community of this long established scheme.
2. Demonstrate clearly (and in person) the bona fides of the not-for-profit scheme and reiterate all competitive charges – no bid/offer spreads, no monthly contract charges or exit penalties.
3. Encourage younger members to commence pension contributions (hopefully with the Boyne Trustees) as procrastination when saving for retirement is a costly error.
4. Inform people how to get started – go to the website www.irishdentistsretirement.com, click FAQ and what to do next, print off an application form, complete and return to the address supplied.

It couldn't be easier really! However, if you have any questions please just call me or email me, Paul King, on 01 634 4800 or paul@irishdentistsretirement.com.

Paul King is Acuvest's Business Development and Client Manager.

DIARY OF EVENTS

SEPTEMBER

15-16 **IDENTEX** *Citywest Hotel, Dublin*

Some of the biggest names in the Irish and international dental trade will exhibit at this year's IDENTEX. They will be showcasing their latest products, services and innovations to improve your dental practice. It is also the setting for the IDA Autumn Meeting, which will include a full programme of CPD events.

29 **IDA RETIREMENT SEMINAR** *Radisson Hotel, Dublin Airport*

This jam-packed day, which is kindly sponsored by Goodbody, will commence with registration at 9.30am followed by a fantastic programme of fascinating speakers. The IDA retirement seminar is an absolute must for those recently retired or thinking of retiring in the next few years. A full programme of events will be announced soon.

20 **MOUTH CANCER AWARENESS DAY** *Nationwide*

21 **IDA METRO BRANCH MEETING** *Alexander Hotel*

Supper for Learning at 6.00pm followed by lectures at 7.30pm.
For bookings log on to www.dentist.ie and select 'Book CPD Event'

OCTOBER

19 **IDA METRO BRANCH MEETING** *Alexander Hotel*

New members' wine reception evening

NOVEMBER

16 **IDA METRO BRANCH MEETING** *Alexander Hotel*

Supper for Learning, lectures and Christmas drinks!

17 **IDA MUNSTER BRANCH MEETING** *Fota Resort*

Munster AGM

HSE DENTAL SURGEONS SEMINAR | OCTOBER 12-13 | NOW BOOKING 01 295 0072

Dr Richard Balmer
Consultant and Lecturer in Paediatric Dentistry, University of Leeds

Dr Brett Duane
Associate Professor, Dublin Dental University Hospital

Dr Niamh Galvin
Principal Dental Surgeon

Dr Robert Cunney
Consultant Microbiologist, CUH Temple Street and HPSC

Dr Jane Renehan
HSE Principal Dental Surgeon

Dr Paddy Crotty
Restorative Dentist

Due to popular demand, this year's HSE Dental Surgeons Seminar returns to the county of Kilkenny and the beautiful venue of Hotel Kilkenny on Thursday and Friday, October 12 and 13.

We are delighted to welcome such distinguished speakers as those pictured above, as well as Dr Maura Haran, Senior Dental Surgeon Special Needs; Dr Ebrahim Al Awadhi, Consultant Orthodontist, Dublin Dental University Hospital; and, many others. A full trade show will take place on Thursday, October 12. The AGM of the HSE Dental Surgeons will take place on Thursday afternoon and all members are encouraged to attend. This is your opportunity to hear the reports of the CEO, Fintan Hourihan, and the Committee first hand, to ask questions, and to voice your opinion. Our social evening buffet will take place at the hotel on Thursday evening. All delegates and trade colleagues are welcome to attend. More information and a full programme will be circulated very soon.

Conscious sedation graduation

Congratulations to the graduates of the Postgraduate Diploma in Conscious Sedation in Dentistry who received their awards from The Registrar of The University of Dublin on Monday, June 19, 2017. From left: Dr Mary Clarke, Course Director; Dr Lucy O'Hare; Dr Iseult Bouarroudj; Prof. Brian O'Connell, Dean of the Dublin Dental University Hospital; Dr Joan Lockhart; Dr Miriam Bourke; Dr Louise O'Leary; and, Dr Lyndsey McTavish.

The following received their awards in absentia: Dr Aisling Donnelly; and, Dr Mairead O'Connor.

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IDA lobbies Taoiseach for emergency plan to address oral health crisis

IDA Chief Executive FINTAN HOURIHAN has written to the Taoiseach, Dr Leo Varadkar TD, seeking a cross-departmental approach to addressing the crisis in Irish oral health.

CSO Household Budget Surveys – reported spending on dental care

Total annual spend on dentist visits per household

1995	2000	2005	2010	2015
€60	€74	€141	€197	€84.53

The publication of the latest Household Budget Survey by the Central Statistics Office (CSO) has left us reeling in shock given the scale of the collapse in spending on dental care. The latest CSO figures (see above) show that there has been a 57% reduction in household spending on dental care over the past five years and spending is now barely above the levels recorded in 2000. So stark are these figures that the IDA contacted the CSO to verify and unfortunately it was confirmed that there has indeed been such an epic collapse in spending on dental health in the past five years.

Private out-of-pocket expenses or insurance payments account for over 80% of spending on dental care, while at the same time State spending on dental care (whether directly provided by the HSE or contracting dentists to treat medical card or PRSI patients) has been slashed by over €500m in the past five years by our estimates.

Private dental care is provided without the supports available to medical GPs treating the same cohort of patients, and who can expect allowances and grants of around €100,000 per doctor annually. We therefore have no cushion for dental practices at a time when spending by patients has fallen through the floor, with predictable results for the oral health of the nation and also for the financial viability of dental practices.

Mr Hourihan has appealed to the Taoiseach to direct that the relevant Government departments prepare a plan as a matter of urgency to address the crisis now apparent in dentistry, to include as many of the following priorities as resources allow:

- expanding the Med 2 system of reliefs for dental treatments (the IDA has made proposals to the Department of Public Expenditure and Reform/Department of Finance previously) to offset the cost of treatments for patients;
- introducing supports to encourage first dental visits at 12 months;
- increasing investment in the PRSI dental scheme (DTBS);
- directing that negotiations start on a new scheme and contract for medical card (DTSS) patients;
- directing the appointment of extra dentists by the HSE to cater for children and special care patients;
- exploring the potential for dentists to assist in the detection of general health risks as well as oral health; and,
- prioritising early publication of a new Dental Bill.

BREAKDOWN OF CSO FIGURES

The CSO System of Health Accounts for 2015 shows that a total of €603m was spent in dental practices in 2015, of which €501m was accounted for by household out-of-pocket payments. VHI and other insurance-based schemes accounted for €17m, while the medical card scheme accounted for €68m and PRSI accounted for €17m.

A separate CSO publication, the Household Budget Survey, showed that the average household spend (self-declared) was just under €85 per annum on dental visits in 2015, representing a sharp drop on previous levels. Households in urban areas spent more, averaging €91.83, compared to an average for rural households of €81.40.

In a departure from previous norms, the self-employed are no longer the biggest spenders on dental visits and lag behind employees (average household spend of €114.80 compared to €70.97 for the self-employed, and €62.09 for the retired).

The areas where households claimed to spend most on dental visits were the Midlands region (€117.93 per household on average), followed by the Mid-East region (€107.49) and Dublin (€95.49).

For further information visit www.cso.ie or contact Fintan at IDA House.

QUIZ

Submitted by Dr Ed Madeley

Figure 1 shows a 70-year-old female with generalised severe chronic periodontitis, who presented complaining of uncomfortable mandibular gingivae, which bled on brushing. Both the attached and free gingiva had a dusky red appearance, with some white striations. The patient was on a controlled diet as she had type II diabetes, and suffered from osteoporosis and cardiovascular disease, for which she was prescribed alendronate and rivaroxaban, respectively.

FIGURE 1: Severe chronic periodontitis.

Questions:

1. What term may be used here to describe the gingival condition?
2. What other underlying conditions are often associated with this condition?
3. What are the main treatment modalities advocated in a case such as this?

Answers on page 218.

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Southern Cross Dental

Leading the guard

MARGARET O'MALLEY, right, was instrumental in getting the GAA to make mouthguards mandatory for Gaelic football.

Oral health promoter and former dental nurse, Margaret O'Malley, has probably done more than anyone in Ireland to increase mouthguard use in the country. She led a campaign a few years ago which saw the GAA introduce a rule making mouthguards mandatory in Gaelic football. Rather than talk about what she has achieved, Margaret speaks more of what she has to "work on", like getting players to wear mouthguards during the warm-up before matches, getting soccer players to wear them, and addressing the bizarre situation in ladies' football, where senior players don't have to wear them while all other age groups do. During many years spent working as a public dental nurse, the sight of people coming into surgery with sport-related chipped, broken and missing teeth, jaw fractures and other injuries, became a regular thing for Margaret.

She decided to do something about it and says: "I knew from the start that telling parents their children should wear mouthguards wouldn't be enough, that it needed to be in policy, and it needed to be something that was promoted by the national organisations".

Lead from the top

Margaret says that if children don't see the top players in sport wearing mouthguards, then they aren't going to wear them. She decided the best place to start was the GAA. She learned that change in the GAA does not come from outside the GAA, so she joined her local club in Mayo and got voted in as treasurer.

She put herself forward for the role of County Secretary of Mayo GAA, knowing very well she was not going to be elected but that it would allow her to attend county convention, where any rule changes to the GAA start. She used this opportunity to speak on the subject of mouthguards.

Representatives from every club in Mayo were there and she wanted to see how they would react to the idea. She learned that there were some uneducated thoughts on the issue, such as that they made people get sick and that they couldn't be used by people with asthma. Rather than give up, Margaret realised that these were things that she needed to address.

She had managed to get a vote on mouthguards brought to national convention, but says she withdrew it as there wasn't much interest and she wanted to do more research. If it was voted against, it would have been another two years before she could bring it again.

At the time, Margaret was doing national research into mouthguards and oral injuries, and decided to wait a year until she completed this, as it would give her something to present to the GAA to back up what she was saying.

At the next convention, she had the results ready to give out to each delegate and the GAA voted to make mouthguards mandatory for Gaelic football.

Injuries

Margaret says that people aren't aware of how effective a mouthguard can be: "I think the most important thing is that people understand a mouthguard protects more than just the teeth. It protects the jaws. It protects all of that area. It prevents injury to the neck".

She says they are very important for kids who are waiting until they are older to get orthodontic work done as this work would be more complicated on broken teeth.

Dentist-made is best made

One thing Margaret would like to improve is people just getting mouthguards that merely "tick the box", such as ones that are bought from sports shops, as she believes these offer little protection compared to the ones which are made

IDA mouthguard policy

The IDA is currently finalising a new policy promoting increased use of and education around mouthguards.

The IDA will shortly release a new policy regarding the use of mouthguards in sport and other activity. The proposed policy states: "Mouthguards should be used by anyone – both children and adults – who plays contact sports such as football, hurling, boxing, soccer, basketball and hockey. However, even those participating in non-contact sports (e.g., gymnastics) and any recreational activity that might pose a risk of injury to the mouth (skateboarding, mountain biking, etc.) would benefit from wearing a protective mouthguard".

A mouthguard acts as a cushion which spreads the impact of any blow and prevents violent contact between the upper and lower teeth. Mouthguards help prevent traumatic injury to the teeth.

The IDA believes there is a need to create awareness at individual, school and club level of the importance of wearing a mouthguard while engaged in contact sport to reduce the number of traumatic oral injuries.

The proposed policy cites how the GAA introduced a mandatory mouthguard rule for football players and believes similar rules should be introduced by all other sporting bodies. It also identifies a few reasons for poor compliance rates with mouthguard recommendations:

- gag reflex;
- mouthguards can make communication difficult; and,
- a lack of awareness.

The best mouthguard

A custom-made mouthguard made by a dentist from an impression of a patient's teeth offers the best protection. It also provides the most comfort, the best fit and makes communication easier.

A properly-fitted mouthguard may be particularly important for people who wear braces or have bridge work. A dentist or orthodontist can determine the mouthguard that will provide the best protection for unique mouth work. There are other types of mouthguard available in sports shops but they do not offer the same protection as custom-made ones.

The proposed IDA policy states that promoting the mandatory use of mouthguards in contact sport, especially from an early age, is vital, as younger children are influenced by their sport-playing peers. Education and promotion of emergency treatment following a dental accident needs to be encouraged. Dentists should take a lead by educating their younger patients and those patients' parents.

by a dentist: "It may get you over the rules but it won't protect you".

A mouthguard made by a dentist is the best as it is fitted for each individual. She says clubs around the country should give their players an incentive to get these mouthguards by approaching local dentists. She did this for her local club and a dentist agreed to see the whole team on one Saturday. The club agreed to subsidise the cost of each mouthguard by €10. Following taking each impression, the dentist did an oral exam and says many players returned as regular patients.

Soccer

Margaret says her big thing now is soccer. If kids are playing soccer and they don't have to wear a mouthguard, they will start questioning why they have to wear it for football and rugby: "Unless it's a policy thing, kids will get out of it".

Margaret has tried to contact people in the Football Association of Ireland (FAI) to try to organise meetings but has had little success: "But I'm like a dog with a bone, I'll keep going until I get something".

Social media – like or unlike?

Social media can help practices to improve services and connect with patients but dentists should be very cautious about what they post online.

Did you know that 87% of Irish people are online?[1] That huge figure is likely to include your colleagues, patients, and potential patients. With a global uptake of just under 50%, and Europe as a whole having 77% of people online,[2] people in Ireland are already in a great position to benefit from social media – and they do!

Facebook

In Ireland, 59% of people have a Facebook page, and 72% of those use it daily. Half of 18-24 year olds check Facebook as soon as they wake up! People use a Facebook page to contact friends, share photos and comment on status updates. Facebook also offers you the opportunity to create a business page.

LinkedIn

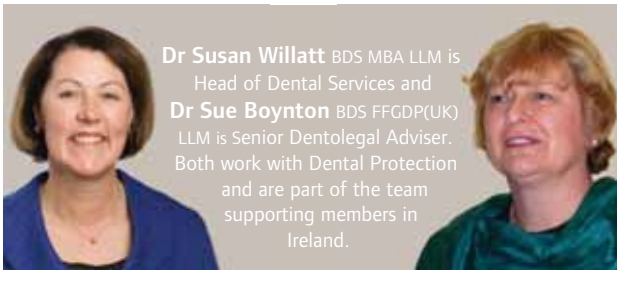
Some 27% of people in Ireland have registered with LinkedIn, with 11% of those using it daily. LinkedIn is designed for professional networking and keeping up to date. Users can connect with individuals and professional groups by connecting and interacting in group discussions.

Twitter

A total of 25% of Irish people have a Twitter profile, with 39% of them using it daily. A tweet is a short message, 140 characters maximum, which can include links, videos and photos. You can prefix your words with a hashtag (#) to make them into a searchable link. It is often used in real time, for example, live tweeting from an event. When you send out a tweet, it is visible to anybody who follows your account, visits your Twitter profile page, or searches for a hashtag you have used. See an example of a tweet in **Figure 1**.

Instagram

In Ireland, 28% of people have registered with Instagram, with 56% of those using it daily. Instagram is designed for sharing photos and videos taken with your phone.



Dr Susan Willatt BDS MBA LLM is Head of Dental Services and **Dr Sue Boynton** BDS FFGDP(UK) LLM is Senior Dentolegal Adviser. Both work with Dental Protection and are part of the team supporting members in Ireland.

FIGURE 1: A tweet with a hashtag and a link.

How can you use social media?

You might be forgiven for thinking: 'That's all very interesting but what has that got to do with me'? The use of social media is increasing and this brings with it both risks and opportunities. Widespread use of smartphones and other devices means it is easy to both access and create social media content. This has the potential to create 'in the moment' decisions which might have benefitted from further consideration. Bad news and extravagant comments travel quickly on social media and this is worth keeping in mind.

Dental healthcare professionals are trained in ethics and professionalism, but that knowledge is not always at the conscious level when using social media.

Dental Protection has seen a number of inappropriate social media messages from members of dental teams. Once a message is out there, it's a bit like toothpaste being squeezed out of a tube: you cannot get it back.

Personal and professional actions

However you use social media, it can have an impact on your professional reputation. Communications intended for family or friends may unwittingly become more widely available to patients, your employer, potential employers and others. Indeed, it is not uncommon for potential employers to check out an applicant's digital footprint, i.e., what can be found about them online. The outcome can be either positive or negative.

Similarly, Dental Protection has seen members run into trouble when they are off work sick, while their social media page suggests a very different story. The story of an Australian employee who tried to claim his sick pay at work only to have his claim turned down by the human resources office made headlines at the time. The employee pushed for his claim to be made and couldn't understand the resistance… until he realised that his Facebook update stating that he was "still trashed" and "pulling a sickie" had given the game away.[3]

Information from social media has been produced in court, both in claims and in divorce proceedings.

Your personal social media profile should be professional – you might want to adjust your settings so that you can pre-approve comments made about you or photographs before they can be posted.

Regulators will consider you to be in professional mode all the time, not just when you are at work. The Dental Council 'Code of Practice relating to Professional Behaviour and Ethical Conduct' states: "Your use of social media should be responsible and discreet. Indiscretion is not acceptable and could leave you liable to fitness to practice proceedings".[4]

You can set up online alerts to notify you whenever your name or practice name is mentioned. You might find it helpful to monitor your social media accounts daily and address any issues as soon as they arise.

LIKE The positives:	UNLIKE Potential problems:
▸ professional networking, connectivity and support; ▸ education; ▸ promotion of business and self; ▸ enhancing online reputation and credibility; and, ▸ low cost.	▸ investment of time; ▸ potential damage to professional image; ▸ potential confidentiality issues; and, ▸ need to assess information for quality.

Friend requests from patients

The boundary between professional and personal contacts can become blurred on social media and it is not unusual for dental healthcare professionals to receive a friend request from one of their patients. Such a request should be declined and the patient should be directed to the practice social media page in order to communicate at a professional level.

Requests for advice

Social media can be regarded as instantaneous, so patients sometimes use this channel to ask a quick clinical question. Just as in the surgery, any advice needs to be based on a diagnosis and a diagnosis requires history and an examination; it would not be appropriate to provide clinical advice over social media. You might instead invite the patient to make an appointment.

Confidentiality

Because social media is seen as informal and patients can often give their names, it is really important that confidentiality is at the front of your thinking when you consider your response. Informality can sometimes lead to an inadvertent breach of confidentiality. Even though the patient has chosen to reveal their name, that in itself it does not entitle the professional to breach confidentiality.

Need to be factual

It goes without saying that anything you post on social media should be factual. You also need to be careful when sharing content posted by someone else, as you can still be held accountable even though you did not create it.

Teamwork

If you are considering using social media professionally, you might want to establish a strategy looking at: what you want to achieve; who in the team will have overall responsibility; what oversight you will have; how much time you can spend; how you will monitor your social media presence; how secure it will be; and, how you will assess the effectiveness of your strategy. You'll also need a plan for dealing with negative feedback.

A practice meeting can be a good forum to share ideas, and you might use it as CPD to ensure that everyone is up to date regarding their professional and ethical obligations when using social media.

Be professional
Be mindful of confidentiality
Consider your reputation
If in doubt – don't!

Some practices have set their strategy to include increasing overall awareness of the practice and its services, connecting with current and new patients, and health promotion.

It can be helpful to build momentum from within the practice; once the team is motivated and enthusiastic it is easier to create interest face to face with patients. You might talk to patients about what you are doing and invite them to engage with you; you could also include information in the waiting room and in a newsletter. You might collect and queue relevant content so that you can post regularly. That could include oral health messages, news about the team, news about new treatments, or positive feedback from patients. Sharing relevant information that patients care about can contribute to your success.

References

1. **Zephoria Digital Marketing.** Available at: https://zephoria.com/insights/.
2. **Internetworldstats.com.** Internet usage statistics. Available at: http://www.internetworldstats.com/stats.htm.
3. **Malkin, B.** Company launches investigation into 'Facebook sickie'. *The Telegraph* 2008; October 23.
4. **Dental Council.** Code of Practice relating to: Professional Behaviour and Ethical Conduct. Available from: dentalcouncil.ie/files/Professional%20Behaviour%20and%20Ethical%20Conduct%20-%20final%20-%20%2020120116.pdf.

Periodontal courses in November

Quintess Denta says it is delighted to bring respected speaker Dr Ian Dunn to Ireland for two day-long courses in November. Dr Dunn is a specialist periodontist and senior clinical teacher at Liverpool University. He is passionate about his subject area and a practical hands-on session will be included on both days, where delegates will get the chance to practice techniques on pigs' jaws (these will be supplied).

The course will be held in Dublin and Belfast. On Friday, November 3, it will take place in the Radisson Blu Hotel, St Helen's, Dublin, and on Saturday, November 4, it will move on to Gentle Dental Care, Lisburn Road, Belfast. If you are looking for a comprehensive periodontal course with practical hands-on experience, delivered by one of the UK's top lecturers, then this course may be what you're looking for.

2017 Moloney Award Winner

At the presentation of the 2017 Moloney Award were (from left): Dr Gillian Smith, Honorary Secretary, IDA; Dr Paddy Crotty, Trustee, Dental Health Foundation; Dr Sheila Galvin, Consultant, Dublin Dental School and Hospital and Moloney Award Winner 2017; and, Patricia Gilsenan-O'Neill, Chief Executive, Dental Health Foundation.

Mouth Cancer Awareness Day 2017

Mouth Cancer Awareness Day 2017 will take place on Wednesday, September 20. Mouth Cancer Awareness Day has been a fantastic success since its inception in 2010, with over 20,000 patients availing of free mouth cancer exams and 26 cancers being detected as a direct result of the day.

This year, we are not asking dentists to offer free mouth cancer exams on the day, or indeed to set aside a specified period of time to carry out free mouth cancer exams. Instead, we are hoping to link with some well-known homeless charities in various urban areas to offer free mouth cancer exams for homeless people. Dentists do not have to register this year to take part.

Patient information on mouth cancer for your surgery is available from the Irish Cancer Society at www.cancer.ie.

Road warrior

Paddy Bolger, Managing Director of Henry Schein Ireland, cycled the length of Ireland in June for blood cancer charity DKMS. The 630km cycle took Paddy just two days. Paddy said that he couldn't have manged it without the support of Ken O'Brien, General Manager of BioHorizons, UK and Ireland, who followed him in a support vehicle, which contained supplies and a spare bicycle, and flew the flag for DKMS.

Digital symposium

The DMI Digital Symposium will take place in Dublin on September 6 and Galway on September 8. This digital event will feature a verifiable CPD course presented by Dr Alastair Woods and Dr Brendan Fanning. DMI states it will deliver a comprehensive understanding of the digital workflow associated with using 3D CBCT, intra-oral scanning, CAD/CAM and 3D printing.

The course will cover the principles, clinical benefits, regulatory responsibilities, and capture and diagnosis of 3D images in the delivery of best clinical practice. The company states: "Learn how to scan and design your own crowns/3D implant guides and discuss the options of preparing in-house or sending to a lab". DMI states that experts will be on hand with the latest technologies to provide practical tips and tricks through interactive sessions and live demonstrations. The company is advising dentists to register early as places are limited.

Dental Care Ireland buys periodontal practice

Dental Care Ireland has announced its acquisition of MK Perio, the Dublin-based periodontal clinic led by Dr Maher Kemmoona. The acquisition will result in a merger between MK Perio and the Northumberland Institute of Dental Medicine (NIDM), which has been a member of Dental Care Ireland since 2016. Dr Kemmoona will join the specialist team at NIDM, operating from its practice in Ballsbridge, Dublin 4.

Colm Davitt, Chief Executive, Dental Care Ireland, commented: "The Northumberland Institute has been a leading light in specialist dental care and training in Ireland for over 30 years. The addition of MK Perio to the practice will further enhance its offering".

According to Dr Kemmoona: "The merger is an ideal opportunity to draw on the synergies between our two practices, and to consolidate our expertise".

Dental Care Ireland is an Irish-owned dental group, with a growing network of established general and specialist dental practices nationwide.

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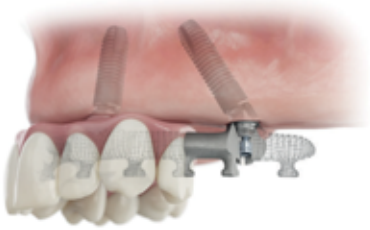

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An introduction to the digital workflow in fixed prosthodontics

The digital workflow is an optimised method of fabricating indirect restorations.

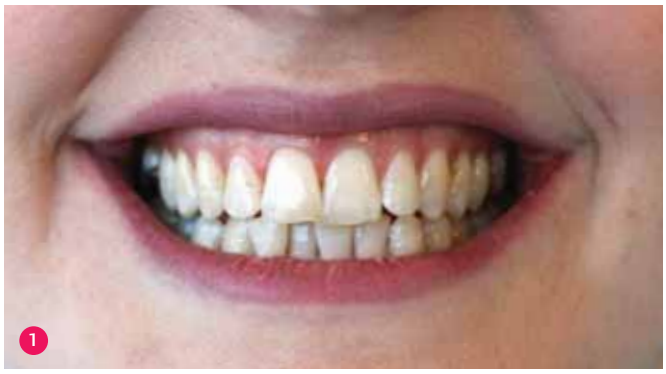

FIGURE 1: The preoperative extra-oral presentation of the patient during a natural smile.

Although the technology has been available since the 1980s,[1] the digital workflow has only recently come into trend as an alternative method for fabricating indirect restorations for the mouth, when compared to conventional fabrication of impressions, gypsum models, investment castings and firing cycles using the lost wax technique. The American College of Prosthodontists defines the digital process as: "any workflow that occurs primarily through the use of converting physical or 'analog,' structures into a digital format to be manipulated using computer-aided design (CAD) software. Often, the digital process resembles the analog process in steps, but is accomplished virtually on a computer until the design is machine fabricated through automated milling or 3D printing methods".[2]

CAD and computer-aided manufacturing (CAM) technology permits the use of dental materials with enhanced mechanical and manufacturing properties. The method of fabrication of these restorations appears to involve fewer steps, fewer sources of potential error and, therefore, offers more standardisation and predictability to the operator. The process is associated with lower fabrication costs and faster fabrication times. As such, the dental profession has been showing a steadily increasing interest in incorporating the digital workflow into prosthodontics.

This clinical article offers an introduction to the aforementioned processes, presenting how a fully-digital workflow can be applied to a simple, everyday case in general dental practice.

Dr David McReynolds
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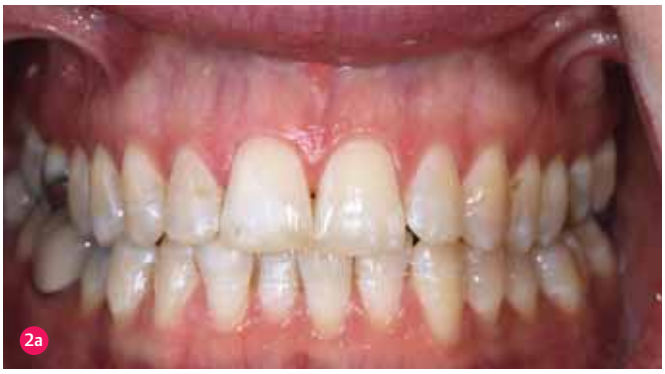


FIGURES 2a-2e: The preoperative intra-oral presentation of the patient.

Note that the natural teeth are long and narrow in form and the gingival architecture is highly scalloped, hallmarks of a thin gingival biotype.

Case report

The patient is a 32-year-old female in good health, whose chief complaint was: "My dentist told me that I needed a crown on my root canal-treated molar tooth". Extra-oral assessment revealed a high and wide functional lip line

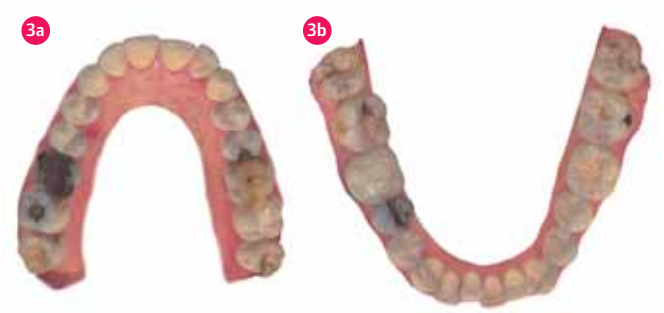
exposing the posterior dentition (**Figure 1**). Intra-oral examination (**Figure 2a**) displayed a complete, well-maintained adult dentition, which had been moderately restored with direct restorations and one metal ceramic crown. The maxillary left first molar was endodontically treated to a high standard and restored with a large post-retained composite resin restoration. The maxillary right first molar was vital, heavily restored with an amalgam restoration and was displaying several longitudinal stained cracks (**Figure 2b**). The mandibular right second pre-molar was heavily restored with amalgam and displayed multiple longitudinal stained cracks also (**Figures 2c-2e**). The periodontal status was stable with good oral hygiene, no evidence of periodontal pocketing greater than 3mm and no evidence of bleeding on probing. A thin gingival biotype was noted.

The digital impression

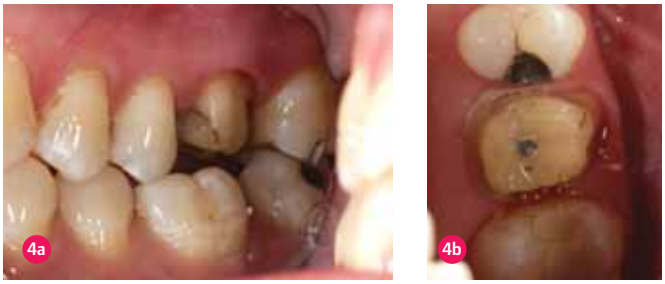
Multiple intra-oral scanners are currently available and each one uses radically different technology to achieve a similar result. In this case, a 3Shape TRIOS intra-oral scanner was used. During the process of an intra-oral scan, a handheld wand containing a camera is used to capture many still images of the dentition for scanning, from which a three-dimensional digital model is formed using parallel confocal laser scanning technology.[3] Laser scanning creates a 3D image through a triangulation mechanism: a laser dot or line is projected onto the subject from the handheld wand, and a sensor measures the distance to the surface of the subject in order to fabricate the digital model.[2] Multiple advantages are proposed for adopting the use of digital intra-oral scanners. From a technical perspective, fewer steps are required in the digital workflow to fabricate restorations as there is no need to make conventional impressions and pour gypsum casts. It is implied that fewer steps should equate to a reduced chance of error accumulation in the fabrication process. However, the main reasons for their widespread acceptance appear to be from a pragmatic perspective. To the inexperienced clinician, the digital impression technique is perceived to be easier to grasp than conventional impression techniques.[4] Once the clinician becomes fluent with the technique, the digital impression procedure offers superior time efficiency clinically. The technique allows instant evaluation of the digital cast by the operator,[3] from which defects may be readily identified. Furthermore, patch scanning is possible to correct localised defects in the impression, thereby eliminating the need to retake full arch impressions. As the resultant scan exists only as a standard tessellation language (STL) file, the digital impression may be easily and rapidly transferred to the lab.[5] For the dental team, the digital impression procedure means that there is no need to mix and clean up impression materials. From the perspective of the patient, the intra-oral scanning procedure is thought to be more comfortable and less invasive compared to conventional impressions, which may be particularly relevant to patients who experience a profound gag reflex. In terms of accuracy, digital impression systems appear to produce a clinically-acceptable fit in single unit crowns and short-span fixed dental prostheses on natural teeth[6-11] and implants,[12,13] but it appears that they are not accurate enough to be applied to full-arch applications, particularly those involving dental implants.[14-18]

Clinical and laboratory procedures

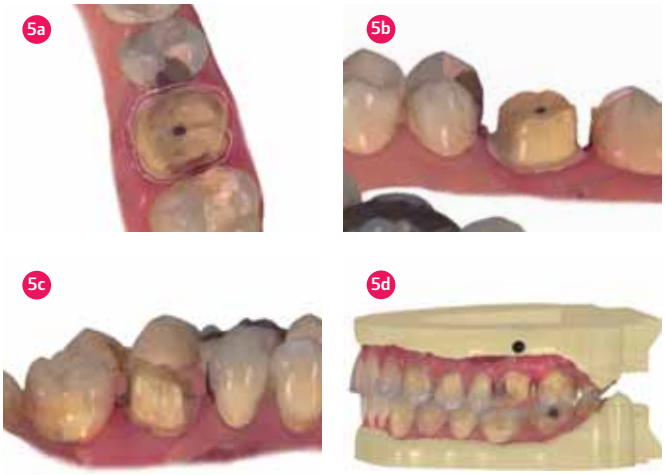
The first step of the fully-digital workflow is to capture pre-operative digital impressions of the dentition using a digital intra-oral scanner (**Figures 3a** and **3b**). Tooth preparations are subsequently carried out to the parameters



FIGURES 3a and 3b: Preoperative digital impressions of the dentition, fabricated with a 3Shape TRIOS intra-oral scanner.



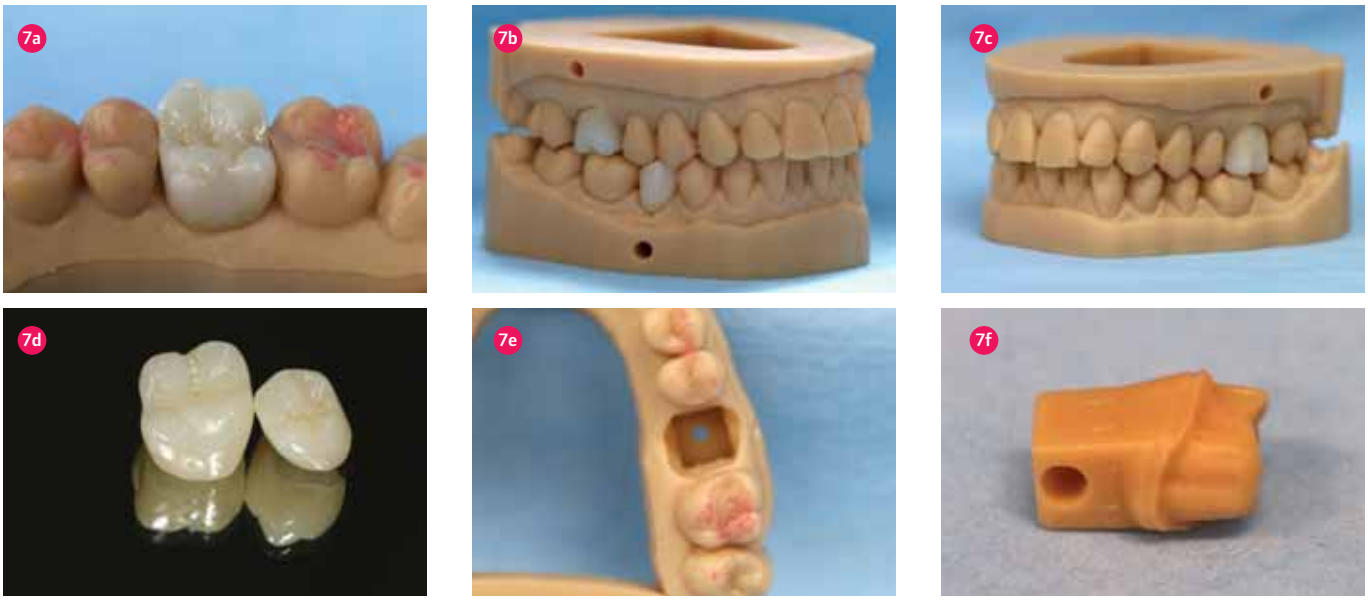
FIGURES 4a and 4b: Crown preparations are made to accommodate the selected restorative material. In this case, monolithic zirconia is the material chosen.



FIGURES 5a-5d: The crown preparations may be patch scanned into the original pre-preparation scan, following which a jaw relation scan is made.

required for the selected restorative material (**Figures 4a** and **4b**).[19,20] In this case, monolithic zirconia was the restorative material chosen. As a restorative material, zirconia appears to permit the marriage of aesthetics with fracture toughness, in the context of low cost and fabrication ease using the digital workflow, lending itself well to the needs of patients and restorative dentists. Indeed, monolithic zirconia boasts the highest ever reported mechanical properties for any dental ceramic.[21-23] Once crown preparations are completed, gingival retraction is placed and the crown preparations may be patch scanned into the original preoperative scans (**Figures 5a-5c**) and a jaw relation scan is made (**Figure 5d**). At this point the digital impressions are electronically sent

FIGURES 6a-6c: The contours of the definitive crowns are designed digitally using CAD software.



FIGURES 7a-7f:
Beautiful monolithic zirconia crowns are returned from the dental laboratory on milled resin models, with detachable dies to permit inspection of the work.

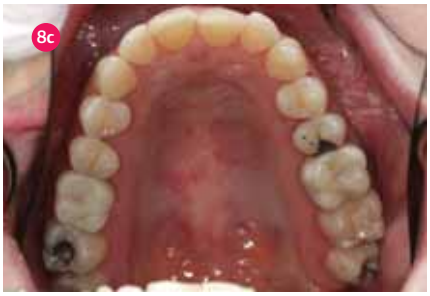
to the dental laboratory of choice and the crown preparations are provisionalised. At the dental laboratory, the final contours of the definitive crowns are designed using CAD software (**Figure 6a-6c**) and the designs are ported to a milling unit where these contours can be machined out of a homogenous zirconia blank in the green state. External colourants may be applied to the milled crown in the green state before final sintering. The finished laboratory work (**Figures 7a-7d**) is returned to the clinician on a milled resin cast (**Figure 7e**) complete with removable dies such that the work may be adequately inspected (**Figure 7f**). The definitive crowns may be tried in the mouth for biomechanical and aesthetic evaluation, and upon patient and operator approval, may be definitively fitted according to a cementation protocol of the operator's preference (**Figures 8a-8e**).

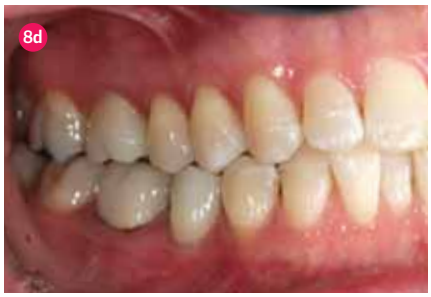
Acknowledgements

The author thanks crown and bridge technician Mr Ken Hall for the masterful laboratory work illustrated in this clinical report.

References

1. **Davidowitz, G., Kotick, P.G.** The use of CAD/CAM in dentistry. *Dent Clin North Am* 2011; 55 (3): 559-570.
2. **Grant, G.T., Campbell, S.D., Masri, R.M., Andersen, M.R., The American College of Prosthodontists Digital Dentistry Glossary Development Task Force.** Glossary of Digital Dental Terms: American College of Prosthodontists. *J Prosthodont* 2016; 25 (Suppl. 2): S2-S9.
3. **Ahlholm, P., Sipilä, K., Vallittu, P., Jakonen, M., Kotiranta, U.** Digital versus conventional impressions in fixed prosthodontics: A review. *J Prosthodont* 2016; doi:10.1111/jopr.12527.
4. **Lee, S.J., Macarthur, R.X. 4th, Gallucci, G.O.** An evaluation of student and clinician perception of digital and conventional implant impressions. *J Prosthet Dent* 2013; 110 (5): 420-423.
5. **Christensen, G.J.** Impressions are changing: Deciding on conventional, digital or digital plus in-office milling. *J Am Dent Assoc* 2009; 140 (10): 1301-1304.
6. **Anadotioti, E., Aquilino, S.A., Gratton, D.G., Holloway, J.A., Denry, I., Thomas, G.W. *et al.*** 3D and 2D marginal fit of pressed and CAD/CAM lithium disilicate crowns made from digital and conventional impressions. *J Prosthodont* 2014; 23 (8): 610-617.
7. **Seelbach, P., Brueckel, C., Wostmann, B.** Accuracy of digital and conventional impression techniques and workflow. *Clin Oral Investig* 2013; 17 (7): 1759-1764.
8. **Zarauz, C., Valverde, A., Martinez-Rus, F., Hassan, B., Pradies, G.** Clinical evaluation comparing the fit of all-ceramic crowns obtained from silicone and digital intraoral impressions. *Clin Oral Investig* 2016; 20 (4): 799-806.
9. **Syrek, A., Reich, G., Ranftl, D., Klein, C., Cerny, B., Brodesser, J.** Clinical evaluation of all-ceramic crowns fabricated from intra-oral digital impressions based on the





FIGURES 8a-8e:
The post-operative appearance of the patient. Note the healthy gingival response to the new crowns.

principle of active wavefront sampling. *J Dent* 2010; 38 (7): 553-559.

10. **Abdel-Azim, T., Rogers, K., Elathamna, E., Zandinejad, A., Metz, M., Morton, D.** Comparison of the marginal fit of lithium disilicate crowns fabricated with CAD/CAM technology by using conventional impressions and two intraoral digital scanners. *J Prosthet Dent* 2015; 114 (4): 554-559.
11. **Almeida e Silva, J.S., Erdelt, K., Edelhoff, D.** Marginal and internal fit of four-unit zirconia fixed dental prosthesis based on digital and conventional impression techniques. *Clin Oral Investig* 2014; 18 (2): 515-523.
12. **Abdel-Azim, T., Zandinejad, A., Elathamna, E., Lin, W., Morton, D.** The influence of digital fabrication options on the accuracy of dental implant-based single unit and complete-arch frameworks. *Int J Oral Maxillofac Implants* 2014; 29 (6): 1281-1288.
13. **Lee, S.J., Betensky, R.A., Gianneschi, G.E., Gallucci, G.O.** Accuracy of digital versus conventional implant impressions. *Clin Oral Implants Res* 2015; 26 (6): 715-719.
14. **Ender, A., Mehl, A.** Accuracy of complete-arch dental impressions: a new method for measuring trueness and precision. *J Prosthet Dent* 2013; 109 (2): 121-128.
15. **Ender, A., Mehl, A.** *In-vitro* evaluation of the accuracy of conventional and digital methods of obtaining full-arch dental impressions. *Quintessence Int* 2015; 23 (1): 610-617.
16. **Güth, J.F., Edelhoff, D., Schweiger, J., Keul, C.** A new method for the evaluation of the accuracy of full arch digital impressions *in vitro*. *Clin Oral Investig* 2016; 20 (7): 1487-1494.
17. **Kuhr, F., Schmidt, A., Rehmann, P., Worstmann, B.** A new method for assessing the accuracy of full arch impressions in patients. *J Dent* 2016; 55: 68-74.
18. **Ender, A., Zimmermann, M., Attin, T.** *In vivo* precision of conventional and digital methods for obtaining quadrant dental impressions. *Clin Oral Investig* 2015; 20 (7): 1495-1504.
19. **Goodacre, C.J.** Designing tooth preparations for optimal success. *Dent Clin North Am* 2004; 48 (2): 359-385.
20. **Goodacre, C.J., Campagni, W.V., Aquilino, S.A.** Tooth preparations for complete crowns: an art form based on scientific principles. *J Prosthet Dent* 2001; 84 (4): 363-376.
21. **Denry, I., Kelly, J.R.** State of the art of zirconia for dental applications. *Dent Mater* 2008; 24 (3): 299-307.
22. **Denry, I., Kelly, J.R.** Emerging ceramic-based materials for dentistry. *J Dent Res* 2014; 93 (12): 1235-1242.
23. **Nathanson, D., Chu, S., Yamamoto, H., Stappert, C.F.** Performance of zirconia based crowns and FPDs in prosthodontic practice. *J Dent Res* 89(Spec Iss B): Abstract #2115.

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Friday 15th & Saturday 16th September 2017

Learning and trade

The Irish Dental Trade Association (IDTA) will hold its annual trade show, IDENTEX, in the Citywest Hotel, Dublin on Friday and Saturday, September 15 and 16 this year.

The biggest names in the Irish and international dental trade will exhibit at IDENTEX 2017 in the Citywest Hotel in Dublin in September. They will be showcasing their latest products, services and innovations that can improve your dental practice. They will be giving demonstrations and their professionals will be on hand to answer any questions you may have. Attendance by dentists and their practice staff is free.

Peter Morris, President of the IDTA.

IDENTEX is the largest dental trade show in the country and is once again hosting the Irish Dental Association's Autumn Meeting. The CPD events will provide different educational opportunities on both days.

Peter Morris, President of the IDTA,

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Synopsis

Through this course you will learn the fundamentals of digital technology with proven digital solutions for restorations, implantology and orthodontics. Technology is undoubtedly changing our lives, and from the very beginning CEREC has continually kept in line with what patients want from their dentist: speed, convenience and beautiful, long-lasting restorations in a single visit. Speed and convenience are no longer luxuries for patients, but rather requirements. It's not just the millennial mind-set that's driving this shift - baby boomers, Generation X - they're all seeking products and services that fit into their busy, tech-driven lifestyles and Dentsply Sirona's integrated workflow delivers a high-tech solution for both patients and practitioners alike.

Learning Outcomes

- What CAD/CAM material choices are available
- How the digital workflow changes everything
- How does IOS accuracy compare to conventional impressions
- Discover Digital 3D X-Ray imaging
- Do I have control over fit
- 100% digital integrated implantology

When & Where

17:30 – 21:00	Sept 06 2017	HS Education Centre Cork
17:30 – 21:00	Sept 07 2017	HS Education Centre Dublin

Your Speakers

Simon Chard - *Belfast*

Dr Simon Chard BDS(Hons) BSc(Hons) qualified with Honours from King's College London Dental Institute in 2012. In 2015 he was voted the Best Young Dentist in London and also the overall Best Young Dentist in the UK at the prestigious Dentistry Awards. Simon is very passionate about providing beautiful, healthy smiles for his patients and is a big promoter of using digital technology to simplify cosmetic and implant dentistry.

Sinead McEnhill - *Dublin & Cork*

Sinead McEnhill is the director of Belmore Dental Clinic, 2014 winners of the Best Dental Team Ireland Award. She qualified from Queens University, Belfast in 1995 and worked for 8 years in Belfast before opening Belmore Dental Clinic. Sinead is a member of the ADI, ICOI and the AACD.

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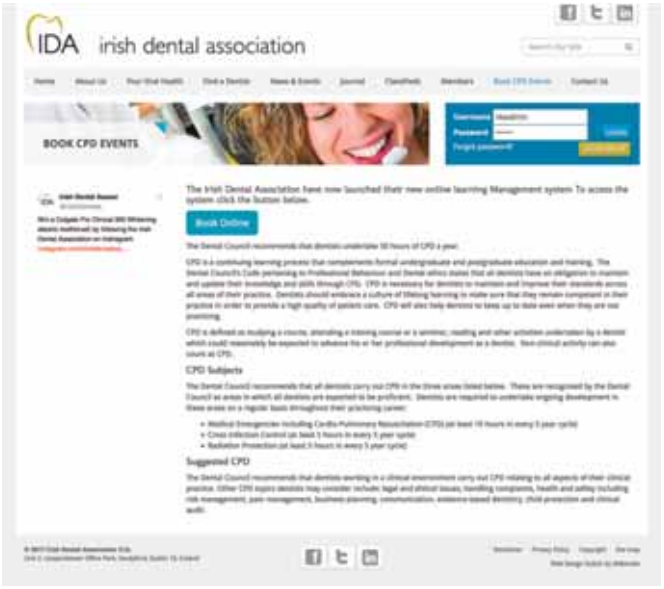
Dr Robin Foyle, President of the IDA.

said: "Once again, IDENTEX aims to bring dentists the top names in the trade, showcasing and demonstrating all their latest innovations and products. The educational aspect that the IDA brings helps make it an even better event".

Robin Foyle, President of the IDA, also spoke about how he's looking forward to the event: "IDENTEX is the perfect setting for the IDA Autumn Meeting. Instead of having separate events that dentists have to travel to, they can go to one place and improve their skills and upgrade their practices at the same time".

IDA Autumn Meeting

The IDA is once again bringing high-quality CPD to IDENTEX. To book any of the sessions, log on to www.dentist.ie and select "Book a CPD event" from the menu bar or phone IDA House on 01-295 0072.



LECTURE: Clinical tips to help dentists provide better, faster, more effective, easier and more profitable dentistry

This two-hour lecture by Prof. Edward Lynch aims to teach dentists about new one-visit crowns, direct composite crowns and when to use glass ionomer cements. Also covered will be hands-on caries removal on teeth, ideal cavity preparations and disinfections, and how to place ideal adhesives and posterior composites.

Prof. Lynch will go through the latest ways to avoid post-operative sensitivity with posterior composites. The lecture will also feature advice on many areas of practice including: placement techniques for posterior composites; deep carious lesions; root canals; minimally-invasive dentistry; silver fluoride; ozone; and, tooth whitening.

The course is sponsored by SDI.

Price: IDA members €25
Non-members €50
Friday 2.00pm-4.00pm

Offers from Septodont

STAND 30

Septodont will be showcasing many of its products and innovations at this year's IDENTEX. The company states that its needle-stick injury safety device, Ultra Safety Plus, is the only clinically-trialled device of its kind. Septodont states it is passionate about the safety and quality of all its products and offers a wide range of items for all areas of clinical dentistry. The company states: "The innovative biocompatible and bioactive technology that was introduced in 2009 with Biodentine has been expanded to our BioRoot Root Canal Sealer". Septodont has been family run since its foundation in 1932 and considers itself a world leader in local dental anaesthesia. The company says it looks forward to welcoming dentists to stand number 30 at IDENTEX 2017 and that its representatives will be happy to discuss your requirements and promotions will be on offer.

Things turn digital

STANDS 15-24

Henry Schein says that: "The future is digital and that is our focus at IDENTEX". The company states that its platform for digital dentistry, Henry Schein ConnectDental, combines a wide choice of digital technology solutions with all the knowledge, service and support needed to help dentists navigate the rapidly-changing world of digital dentistry. Henry Schein believes the move to digital is accelerating and that everything that can go digital will go digital. It is not a question of if, but when. The company says: "Come and visit us at IDENTEX and let us take you on a journey of patient treatments ranging from single-tooth dentistry to high-end aesthetics, implant planning and treatment, complex reconstructions, prosthodontics, inter-disciplinary dentistry and the latest in digital smile design, all using the most current digital techniques and workflow". The company states its focus will not only be on the equipment but also on the provision of a gold standard of patient care. Visit Henry Schein at stands 15-24 at IDENTEX.

HANDS-ON COURSE: Current concepts in posterior composites

For those looking to go in depth into posterior composites, Dr Ian Cline will give a half-day, hands-on course on the subject. The area is one of Dr Cline's main interests and he has taught courses in dentistry in many countries.

Dr Cline aims to go through the latest concepts in posterior composites and look at the specific problems practitioners face when using the technique. He will address the C-factor and explain why and how to minimise its influence. Guidance will be given on how to build the restoration to minimise adjustments, selecting the appropriate instruments for placement and manipulation of the composite, finishing and polishing it, and more.

Price: IDA member €250
Non-members €500
Friday 2.00pm-6.00pm
Saturday 10.00am-2.00pm

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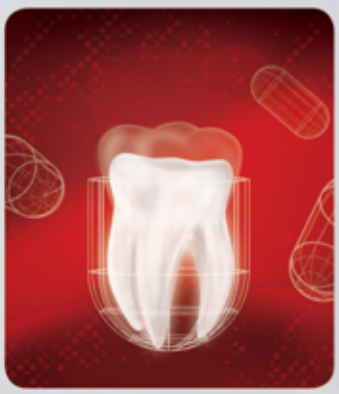

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WORKSHOP:
Basic life support and medical emergencies

If somebody falls seriously ill in your practice, this workshop will enable you to do the right things until paramedics arrive. It will teach dentists how to deal with an acutely-ill adult by showing them an accessible patient assessment and management system.

The course will cover what emergency drugs are required, and how they are prepared and administered – covering dosage and route of administration.

The workshop administrators will be able to answer any questions and there will be simulation-based education using a hands-on approach. After the workshop, participants will be able to: recognise, assess and treat an unwell patient; prepare and deliver emergency oxygen; deal with medical emergencies in the dental practice; prepare and administer emergency drugs; and, understand their legal, ethical and professional duty of care.

This is core CPD and is BLS certified.

Price: IDA members €195
Non-members €390
Friday 10.00am-4.00pm
Saturday 10.00am-4.00pm

NSK brings much to IDENTEX

STAND 8

NSK is bringing its range of products to IDENTEX 2017, including the Ti-Max Z air turbine series, which the company states has one of the most powerful air turbines available to dental professionals. Also at the show is the NSK Ti-Max Z95L contra-angle, which, according to the company, delivers incredible torque and precision in restorative procedures. For decontamination, NSK says its iCare+ washer-disinfector system offers fast automatic cleaning for up to four instruments at a time. The NSK autoclave range offers the iClave+ and iClave mini, which the company states combine high performance with a compact, elegant design. To find out more, visit NSK on stand 8 and view the range of offers available, including NSK's 'try before you buy' and equipment rental scheme.

Jonathan Singh, NSK.

Braemar Finance at IDENTEX

STAND 54

Lender to the profession covering the UK and Ireland, Braemar Finance states it understands the financial pressures of the dental profession and the need for speedy decisions. The company believes it has finance solutions that are designed to help dentists' businesses succeed, and provides bespoke funding to assist in the variety of requirements dentists may have. The company specialises in providing business finance facilities, which can be used for sector-specific items ranging from equipment, IT and office solutions, to shop fitting and business vehicles. Braemar states its product suite allows for fixed monthly repayments and its bespoke facilities are tax efficient and designed to allow dentists to spread costs. Visit Braemar Finance at stand 54 at IDENTEX 2017.

Joe Biesty, Braemar Finance.

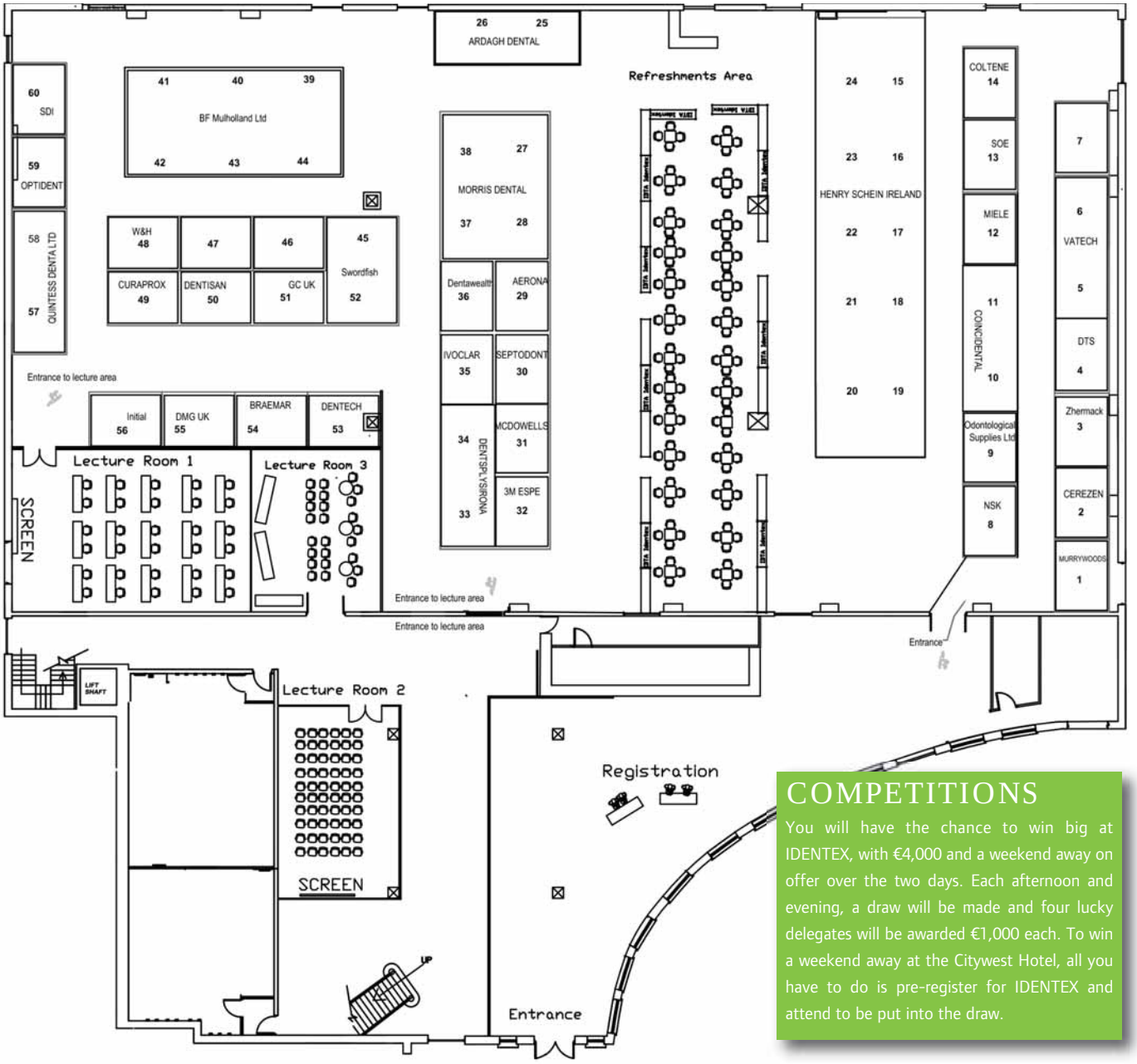
Morris Dental showcasing Belmont

STANDS 27-28 37-88

Morris Dental will once again be featuring many of the latest innovations from Belmont and other manufacturers at this year's IDENTEX. The Belmont equipment showcase will take place on the company's stand and the equipment comes with a free, extended five-year parts and labour warranty. The NSK iClave, which, according to NSK, is the best autoclave it has ever sold, will be there and there will also be NSK handpiece offers. Also displayed will be:

- Acteon's PSPIX phosphor plate system;
- W&H handpieces and washer disinfectors;
- Metasys suction motors and amalgam separation units;
- Cattani compressors;
- the ITENA range of composites, luting cements and glass fiber posts; and,
- HELPie – combined bite block, tongue deflector and suction all in one.

Morris Dental will also be featuring its range of own-brand products, including nitrile and latex gloves, and sterile surgical products. View the Belmont range at the Morris Dental stands 27-28 and 37-38.



COMPETITIONS

You will have the chance to win big at IDENTEX, with €4,000 and a weekend away on offer over the two days. Each afternoon and evening, a draw will be made and four lucky delegates will be awarded €1,000 each. To win a weekend away at the Citywest Hotel, all you have to do is pre-register for IDENTEX and attend to be put into the draw.

STANDS

3M ESPE	32
Aerona	29
Ardagh Dental	25 and 26
BF Mulholland	39-44
Braemar Finance	54
Cerezan	2
Coincidental	10 and 11
Coltene	14
Curaprox	49
Dentawealth	36
Dentech	53
Dentisan	50
Dentsply Sirona	33 and 34
DMG UK LTD	55
DTS	4
GC UK	51
Henry Schein Ireland	15-24
Initial	56
Ivoclar vivadent	35
McDowell and Service	31
Miele	12
Morris Dental	27, 28, 37 and 38
Murray Woods	1
NSK	8
Odontological Supplies Ltd	9
Optident	59
Quintess Denta	57 and 58
SDI	60
Septodont	30
SOE	13
SwordFish Medical	45 and 52
Vatech	5 and 6
W&H	48
Zhermack	3

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Visit BF Mulholland Ltd at Identex 2017

Location

BF Mulholland will be at Stands 39 – 44 at the 2017 Identex show in Dublin. Drop in and make the most of our specialised Identex Offers.

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What will be on show at our stand?

- We will be showcasing our vast range of products with a focus on our growing range of UnoDent and Philips products which are both exclusively available from BF Mulholland Ltd in Ireland.
- Visit our Exclusive Philips Dental Stand and meet local Philips Representative Ruairi Molloy.
- Visit our Handpiece and Small Equipment Repair pod so we can demonstrate the skills and provide tips and tricks on the service that is provided.
- Find out more on our upcoming plans in the Irish Dental Market.

Date and Times

15th and 16th September 2017

Citywest Hotel, Dublin
Friday: 12.00pm - 8.30pm
Saturday: 10.00am - 6.00pm.

Exclusive Offer

IPAD MINI 2

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IDTA

NOMAD Pro 2 from Murray Woods

Murray Woods states that the NOMAD Pro 2 is changing the way dental practices are taking intra-oral images, and that there are now over 23,000 in use globally. The company believes it offers measurable improvements in efficiencies over wall-mount units, lowers equipment costs across multiple surgeries, and provides a better patient experience. Nomad Pro 2 is the only handheld x-ray device available in Ireland. With the NOMAD Pro 2 handheld x-ray device, Murray Woods states you can stay chairside and experience: faster workflows by never pausing for a procedure; more flexibility as it is lightweight, allowing you to move from surgery to surgery; and, diverse care, as the device allows more treatment opportunities for your practice.

STAND 1

Come and see the NOMAD Pro 2 on the Murray Woods stand (stand 1) at IDENTEX.

UnoDent and Philips from BF Mulholland

BF Mulholland will be showcasing its range of products at IDENTEX, with a focus on its range of UnoDent and premium Philips products, which are both exclusively available from BF Mulholland in Ireland. There will be professionals from UnoDent, Philips and BF Mulholland's own dental repair service available on the company's stand.

As well as showing off its current services and product range, the company will be outlining its upcoming plans for the Irish dental market which it states will focus on new product lines, engineering support and how it can provide a more complete service to the whole island. Come and visit BF Mulholland on stands 39-44.

STANDS 39-44

Brian Mulholland (sitting) and the team at BF Mulholland.

Interview with Paddy Bolger, Managing Director, Henry Schein Ireland

Why do you participate in IDENTEX and what do you hope to achieve?

The object of IDENTEX is to inform and show our customers the latest innovations, technologies and products from Henry Schein. As Ireland's largest annual dental trade show, IDENTEX gives Henry Schein an excellent platform to demonstrate to dental professionals the extensive range of solutions we offer as one of the leaders in the dental industry.

The International Dental Show earlier this year showed an accelerating interest in digital dentistry and I am sure this will also be reflected at IDENTEX. At our stand, we will showcase the latest digital innovations, including intra-oral scanners, milling and printing devices and materials, cone beam 3D imaging, practice management systems, and digital dental laboratory solutions. Our Henry Schein ConnectDental specialists will be on hand to demonstrate how these technologies can be successfully integrated into a patient-centric workflow and how smooth communication between dental practices and laboratories can be achieved.

Are you showing any new equipment/products at IDENTEX?

We are working continuously to improve and expand our portfolio to help dental practices become great businesses, while enhancing the patient experience and practitioner's ability to deliver high-quality dentistry.

Under the umbrella of Dental Business Solutions, we will also present the first card terminal/banking solution we are able to offer for dental practitioners, thanks to our new co-operation with AIB Merchant Services. The new service offers counter-top, portable and mobile terminal solutions with high-speed transaction processing. It includes a dedicated and fully-serviced merchant helpdesk and complimentary online reporting tools, and supports all major credit and debit cards.

Are there any special deals available from Henry Schein at IDENTEX?

Our manufacturers have given special deals for IDENTEX only. In addition, we will have an education hub at our stand this year. Throughout the day, there will be free 20-minute demonstrations by experts on defibrillators, business insights, tips on preventive maintenance and much more.

Last but not least, direct communication with dental professionals is also important for us. We want to show them that they can rely on us for any support needed in integrating innovative solutions into their workflow to enhance practice or dental laboratory efficiency and patient experience.

Is 2017 a good year for business so far?

The dental market has experienced an extremely rapid transformation over the past few years. The speed of change is remarkable. We see Henry Schein's role as that of an expeditor of change. Thanks to our global reach, we can spot developing trends and demonstrate how best to integrate tailor-made trusted solutions into the daily routine of dental practices and laboratories. We are able to support our customers in enhancing their businesses and in delivering the optimum care for their patients. Existing customers rely on us and new customers are interested in getting to know our range of solutions. It's wonderful to see so many of our customers doing so well.

Find out more from Murray Woods on stand 1 at IDENTEX 2017

Dental professionals worldwide stand behind the NOMAD Pro 2™.

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Innovative technology makes the **NOMAD Pro 2** one of the safest intraoral imaging systems on the market today. Engineered for operator safety, reports show annual exposure to be lower than conventional X-ray units*.

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*NCRP Report No. 160 (National Council on Radiation Protection and Measurements), P 211-212.

Brief communication: dentists' reproducibility in scoring the plaque index using a fluorescent colouring agent

Précis

The levels of agreement of the Silness-Löe plaque index measurements using Plaque Test (a fluorescent colouring agent) were fair to good among eight dentists.

Abstract

Statement of the problem: Fluorescein is a plaque detection agent, which fluoresces yellow-green when excited with blue light (dental light curing lamp). Little is known about the reproducibility of scoring with the Silness-Löe plaque index (1964) when using this agent.

Purpose of the study: To evaluate the level of agreement of the plaque index measurements using a fluorescent colouring agent among eight dentists.

Materials and methods: Eight dentists in Cork were recruited as examiners for a randomised clinical study investigating the impact of a personalised caries prevention approach. They were trained and calibrated in the use of the plaque index using Plaque Test (Ivoclar Vivadent, Liechtenstein) in the Oral Health Services Research Centre and School of Dental Hygiene, University College Cork. For inter-examiner and intra-examiner reproducibility, a previously calibrated 'gold standard' examiner and seven dentists examined 10 to 12 subjects each, while one dentist examined four subjects only for inter-examiner reproducibility. The adult subjects were recruited at the Cork University Dental School and Hospital. To evaluate inter-examiner and intra-examiner reproducibility at site level, squared weighted kappa statistics were calculated.

Results: The weighted kappa statistics varied from 0.31 to 0.54 for inter-examiner reproducibility under the acceptable level (kappa statistics = 0.60) for research purposes and from 0.43 to 0.65 for intra-examiner reproducibility.

Conclusions: The levels of agreement were fair to good. Further studies are needed, preferably including a qualitative study to analyse feedback from dentists to determine the cause of such variation. This study re-emphasises the importance of clinician calibration ahead of clinical studies.

Keywords: Dental plaque index; fluorescent dyes; reproducibility of results; calibration; risk assessment.

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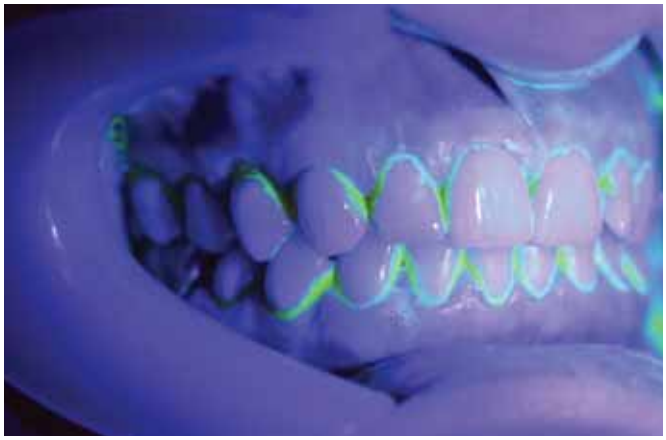

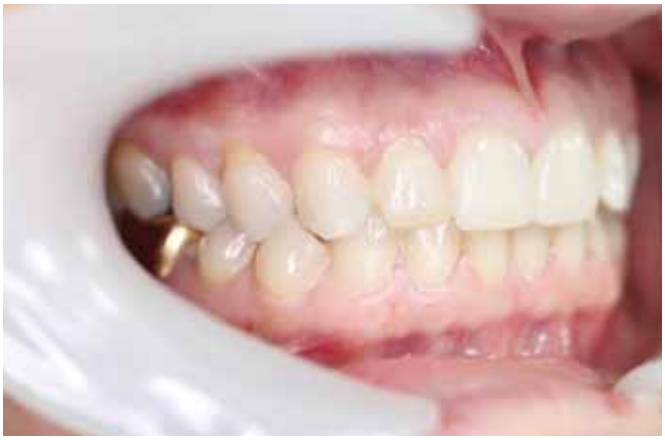

FIGURE 1: Colour change of Plaque Test with and without blue light.

Introduction

Dental plaque (biofilm) is the community of microorganisms on a tooth surface, consisting of a variety of acidogenic, non-acidogenic, and base-producing organisms.[1] Therefore, plaque level is an important factor for the assessment of an individual's risk of caries and periodontal diseases.[2,3] Visualising dental plaque with a disclosing agent is effective not only for risk assessment, but also for patient education.[4]

There are various formulations of disclosing agents. One of them is fluorescein that fluoresces yellow-green when excited with blue light (dental light curing lamp) (**Figure 1**). Since fluorescein is invisible in daylight,[5] this plaque detection agent is aesthetically preferable to patients. It stains most plaque components, with the possible exception of the pellicle.[6] Fluorescein as a plaque-disclosing agent was introduced by Brilliant in 1967 (US Patent 3-309-274; 1967). When fluorescein came to market, it was considered to have fulfilled the ideal characteristics of a plaque-disclosing agent.[7]

Given the anticipated benefits of using a disclosing dye on patients that would not be visible following plaque assessment, we decided to evaluate fluorescein as a suitable disclosing agent with the Silness-Löe plaque index (1964),[8] which we planned to use for a randomised controlled clinical study investigating caries risk assessment. Little is known about the reproducibility of the plaque index when using this disclosing agent. The aim of the present study was to evaluate the level of agreement of Silness-Löe plaque index measurements using a fluorescein (Plaque Test – Ivoclar Vivadent; Liechtenstein) among eight dentists.

Materials and methods

Eight dentists (volunteers) in Cork were recruited as examiners for a clinical study investigating caries risk parameters with the cariogram.[9] This required the dentists to be proficient in the use of the Silness-Löe plaque index (1964).[8] The methodology described here covers: (1) the calibration training (lecture plus clinical session); and, (2) the calibration assessment of these eight dentists in the use of the plaque index using Plaque Test (**Figure 1**). All subjects for both: (1) the calibration training; and, (2) the calibration assessment provided informed consent prior to being examined. The Clinical Research Ethics Committee of the Cork Teaching Hospitals approved the calibration exercise. The Dental Council of Ireland approved the tuition, training and calibration of the trainee-examiner dentists as part of its continued professional development (CPD) programme.

The conference room at the Oral Health Services Research Centre (OHSRC) and dental units in the adjacent School of Dental Hygiene were used. A front surface mirror size 4 head or equivalent, a visible light curing unit, disposable applicator brushes and a dappen glass were prepared. The eight dentists and the gold standard examiner (Professor of Restorative Dentistry (Periodontology) in University College Cork) were supplied with a bottle (11g) of Plaque Test. Protective glasses were placed on each subject before the oral examination commenced. As each subject was examined by multiple dentists, in order to avoid disturbing the dental plaque, only visual inspection was recommended and the use of the community periodontal index (CPI) probe avoided. Before each clinical examination, Plaque Test was applied according to the manufacturer's instructions on the four surfaces of six reference teeth (upper right first molar, upper right lateral incisor, upper left first premolar, lower left first molar, lower left lateral incisor and lower right first premolar). Each dentist reapplied Plaque Test throughout the study using a disposable applicator brush. Each of the four surfaces of the six reference teeth was scored 0-3 to record both soft debris and mineralised deposits (**Table 1**). Missing teeth were not substituted.

1) The calibration training (lecture with clinical session)

As theoretical background, the gold standard examiner (AR; previously calibrated for industry clinical trials) gave the eight trainee-examiner

Table 1: Description of scores used by the Silness-Löe Plaque Index.[8]

Score	Description
0	No plaque
1[a]	A film of plaque adhering to the free gingival margin and adjacent area of the tooth. The plaque may be seen in situ only after application of disclosing solution on the tooth surface.
2	Moderate accumulation of soft deposits within the gingival pocket or on the tooth and gingival margin which can be seen with the naked eye.
3	Abundance of soft matter within the gingival pocket and/or on the tooth and gingival margin.

[a]*Score 1 was modified for the current study.*

dentists a 40-minute interactive presentation/discussion, during which clinical photographs of patients who had been disclosed with Plaque Test were used to discuss the scoring system for the Silness-Löe plaque index. Immediately following this theory training, the gold standard examiner and the eight dentists had a clinical training session with eight patient subjects. During this hour-long practical training, the gold standard examiner discussed the recorded scores in detail with the trainee examiners until they could confidently categorise the level of dental plaque present.

2) Determining both inter- and intra-examiner reproducibility

To permit determination of the kappa statistics for both inter- and intra-examiner reproducibility of plaque assessment, the eight trainee-examiner dentists returned to the clinic to examine a second convenience sample of 12 patients one week after training. The gold standard examiner examined all 12 subjects, seven trainee examiners each examined 10-11 of the 12 subjects, while one trainee examiner had to leave early due to personal reasons and only examined four subjects. Each of the seven trainee examiners re-examined their 10-11 subjects approximately 1.5 hours after their first examination. The subjects were aged between 19 and 75 years (mean age: 40.9±23.9 years, median age: 25) and were recruited through the restorative clinic at Cork University Dental School and Hospital.

For this calibration assessment session, the sample size for required tooth surfaces was calculated for the Cohen's kappa statistic (un-weighted) with a null hypothesis value (an unacceptably low level of agreement) as 0.60[10] and an alternative hypothesis value (a clinically acceptable level of agreement) as 0.75 which was derived from recent available literature.[11,12] The marginal probabilities given by examiners were estimated from the results of the training session as 0.10, 0.40, 0.30, and 0.20 for scores 0, 1, 2 and 3, respectively. Given these data with a significance level of 5% (two-sided) and a power for that detection of 80%, we estimated that 147 tooth surfaces (seven subjects) would be needed per examiner. Therefore, also considering that some patients may be missing a reference tooth or teeth, we recruited ten subjects to have well over the 147 surfaces needed. It should be noted that there was an inherent assumption that the 147 surfaces are independent, although some of the given surfaces were from the same teeth within the same patient. We calculated how many times each subject was examined for inter- and intra-reproducibility and gold standard measurement, and squared weighted kappa statistics for all sites examined to evaluate inter-examiner and intra-examiner reproducibility at site level using a statistical programme, R.[13] We did not calculate kappa statistics for the calibration training session.

Results

On average, each subject was examined 13.1±4.7 times during the calibration assessment session. The maximum value was 16 times. For inter-examiner reproducibility, one dentist examined 11 subjects, six dentists examined ten subjects each, and one dentist examined four subjects (**Table 2**). The number of examined tooth surfaces per trainee examiner was 184 for five dentists, and 208, 160 and 60 for the other three dentists. The kappa results for inter-examiner reproducibility were moderate for five dentists (0.42 to 0.54), and fair for the other three dentists (0.31 to 0.40).

For intra-examiner reproducibility, seven dentists examined ten subjects and six dentists examined one subject (**Table 2**). One dentist did not examine any subject for intra-examiner reproducibility. Numbers of examined tooth surfaces were 184 for six dentists, 160 for one dentist, and zero for one dentist. The results of the kappa value for intra-examiner reproducibility were that two dentists were barely good (0.64, 0.65) and the other five dentists were moderate (0.43 to 0.56).

Table 2: Numbers of patients/tooth surfaces and inter- and intra-reproducibility by trainee-examiner dentist

Trainee-examiner dentist ID	Number of patients inter/intra*	Number of tooth surfaces inter/intra*	Inter-reproducibility	Intra-reproducibility
1	4/0	60/0	0.54	-
2	10	184	0.42	0.53
3	10	184	0.40	0.64
4	11/10	208/184	0.47	0.55
5	10	184	0.42	0.65
6	10	184	0.43	0.56
7	10	184	0.31	0.43
8	10	160	0.32	0.45

** When the numbers are different between inter-examiner and intra-examiner, both numbers are presented.*

Usually, 0.60 is considered acceptable for research purposes.[10] Thus, we have decided that the kappa results were poor enough to reject using Plaque Test in the planned randomised controlled clinical study by the eight dentists.

Discussion

The current study presented fair to moderate inter-examiner reproducibility and moderate to good intra-examiner reproducibility using Plaque Test among eight dentists. All of the participating dentists were experienced dental practitioners, with three dentists also working as clinical instructors at the Cork University Dental School and Hospital, and one dentist often participating in clinical trials with the OHSRC. However, none of the trainee examiners reached good reproducibility (0.61 to 0.80); if the reproducibility value is below 0.60, little confidence should be placed in the study results.[10] We discuss possible reasons for the poor reproducibility considering two aspects: the Silness-Löe plaque index and the Plaque Test.

The Silness-Löe plaque index has been widely used and is respected.[14] However, if the plaque deposits are disturbed during data collection, it is difficult to conduct repeat evaluations with multiple examiners.[14] Therefore, the trainee examiners and the gold standard could not collect dental plaque from the subjects by running a probe over their tooth surfaces; furthermore, the plaque index measures the thickness of gingival plaque with no consideration of the coronal extension of the plaque.[14] Nonetheless, the reproducibility of the plaque index in the current study was lower than in previous studies using the same plaque index. For example, Paschoal *et al.*[11] reported that their intra- and inter-kappa index values were 0.75; Markeviciute and Narbutaite[15] reported that their inter-examiner reproducibility was 0.76; Zini *et al.*[16] reported that all kappa index values were above a level of 0.87 for intra-examiner agreement. It is unknown whether these studies used a disclosing agent or not.

In relation to using Plaque Test as a disclosing agent product, to the best of our knowledge, there has been no published literature reporting low

reproducibility for plaque assessment. In the current study, however, multiple examiners reported that Plaque Test did not stay on tooth surfaces and that it was difficult to detect plaque consistently, though caution is necessary in considering this reason as examiner feedback was collected spontaneously and not in a manner appropriate to a qualitative study. Clinicians should note its viscosity in use; Zingler *et al.*,[17] who used Plaque Test in their study, described that it will be necessary to insert cheek retractors and cotton rolls between the upper and lower teeth, and the teeth should be carefully air-dried. In addition, Plaque Test needs a fluorescent curing light, which is an additional variable and a possible influencing factor. The gold standard noticed that the tip of the curing light only had to be in the vague vicinity of the surface being examined, since having the tip further away was better. Although the dentists were informed of this, we did not set a definite distance and did not calibrate our curing lights.

We applied squared weighted kappa statistics for the current study. For the plaque index, being one scale unit off from perfect agreement is not as serious an error as being two units away from agreement, and weighted kappas are better statistics for examining reproducibility than the unweighted kappas.[18] Spolsky and Gornbein mention that since squared weights give a slightly higher value to the near misses than linear weights, squared weights are preferable and more consistent with the clinical rationale. Thus, we applied the higher squared weighted kappa values rather than using unweighted kappa and linear weights. As it is unknown which type of kappa statistics were used for previous studies on the Silness-Löe plaque index, it could be that the reproducibility of the plaque index in the current study might be even lower than in previous studies.

Fluorescein – Plaque Test was chosen as fluorescent colouring agents have an advantage for patients, given that they do not stain hard and soft tissues. Fluorescein has been regarded as fulfilling the ideal characteristics of a plaque-disclosing agent, such as: (1) to stain specifically bacterial plaque; (2) to contrast with the gingiva; (3) to be non-pathogenic and non-antibacterial; and, (4) to be convenient and pleasant to use and aesthetically acceptable to the patient.[7] Although a visible light curing unit is necessary for their use, nowadays every dental practice is equipped with such units for resin polymerisation. It would thus be easy for dental practices to introduce the use of fluorescent colouring agents.

Due to the calibration results, we chose not to use any disclosing agent in the randomised controlled clinical study but to apply a clinical estimation of plaque amount by visual overall inspection according to the cariogram manual.[19] This method is based on a scale from score 0 to score 3, using a description similar to the Silness-Löe plaque index. Nevertheless, if air flow is commonly equipped, a visible dye may be a better alternative. Chetrus and Ion showed that air flow with sodium bicarbonate powder removed 100% of plaque dyed with fuchsin colouration, while professional cleaning removed 86%.[20] Another possible option is visualising mature dental plaque (more pathogenic)[21] with the Quantitative Light-induced Fluorescence (QLF) device. The phenomenon of red fluorescence emitted by dental plaque itself after excitation with blue light at 405nm from a QLF device has been studied intensively.[14,22-25] The red fluorescent plaque (RFP) is probably associated with the metabolic products of the mature dental plaque.[25] However, the correlation between RFP and disclosed plaque is not strong.[14,22]

Limitations of the current study are that the study design was originally developed in preparation for a randomised controlled clinical study, that the number of dentists was small and that they were a convenience sample. Therefore, the generality of our finding is limited and a definitive conclusion can be drawn only with extreme caution. Further studies are needed to confirm the reproducibility of plaque index using Plaque Test, preferably including a qualitative study to analyse feedback from dentists. To introduce research findings to patient benefit, it is desirable to conduct practice-based research, and have general dental practitioners trained to collect the data. This involves training and calibration, and there is an ongoing need to ensure robust evaluation of the data collected in a practice-based setting.

Conclusions

The agreements for plaque index using Plaque Test were under the acceptable level (kappa statistics = 0.60) for research purposes, with the exception of two dentists for intra-reproducibility. Further studies are needed, preferably including a qualitative study to analyse feedback from dentists to determine the cause of such variation. This study re-emphasises the importance of clinician calibration ahead of clinical studies.

Acknowledgements

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References

1. **van Houte, J.** Role of micro-organisms in caries etiology. *J Dent Res* 1994; 73: 672-681.
2. **Pihlstrom, B.L., Michalowicz, B.S., Johnson, N.W.** Periodontal diseases. *Lancet* 2005; 366: 1809-1820.
3. **Selwitz, R.H., Ismail, A.I., Pitts, N.B.** Dental caries. *Lancet* 2007; 369: 51-59.
4. **Godin, M.C.** The effect of visual feedback and self-scaling on plaque control behavior. *J Periodontol* 1976; 47: 34-37.
5. **Lang, N.P., Ostergaard, E., Löe, H.** A fluorescent plaque disclosing agent. *J Periodontal Res* 1972; 7: 59-67.
6. **Salkin, L.M., Landay, M.A., Hildebrand, C.N., Leve, R.A.** A fluorescent microscopic study of human bacterial plaque smears stained with the plak-lite fluorochrome. *J Calif Dent Assoc* 1974; 2: 60-63.
7. **Edwards, R.C., Sullivan, W.W.** An evaluation of plaque disclosants: clinical significance. *US Navy Med* 1973; 62: 28-30.
8. **Silness, J., Löe, H.** Periodontal disease in pregnancy. II. Correlation between oral hygiene and periodontal condition. *Acta Odontol Scand* 1964; 22: 121-135.
9. **Petersson, G.H.** Assessing caries risk – using the Cariogram model. *Swed Dent J Suppl* 2003: 1-65.
10. **McHugh, M.L.** Interrater reliability: the kappa statistic. *Biochem Med (Zagreb)* 2012; 22: 276-282.
11. **Paschoal, M.A., Moura, C.M., Jeremias, F., Souza, J.F., Bagnato, V.S., *et al.*** Longitudinal effect of curcumin-photodynamic antimicrobial chemotherapy in adolescents during fixed orthodontic treatment: a single-blind randomized clinical trial study. *Lasers Med Sci* 2015; 30: 2059-2065.

12. **Petsi, G., Gizani, S., Twetman, S., Kavvadia, K.** Cariogram caries risk profiles in adolescent orthodontic patients with and without some salivary variables. *Angle Orthod* 2014; 84: 891-895.
13. **The R Core Team.** A language and environment for statistical computing. Vienna, Austria, 2015.
14. **Pretty, I.A., Edgar, W.M., Smith, P.W., Higham, S.M.** Quantification of dental plaque in the research environment. *J Dent* 2005; 33: 193-207.
15. **Markeviciute, G., Narbutaite, J.** Effectiveness of a motivation and practical skills development methods on the oral hygiene of orphans children in Kaunas, Lithuania. *J Oral Maxillofac Res* 2015; 6: e2.
16. **Zini, A., Sgan-Cohen, H.D., Marcenes, W.** Socio-economic position, smoking, and plaque: a pathway to severe chronic periodontitis. *J Clin Periodontol* 2011; 38: 229-235.
17. **Zingler, S., Pritsch, M., Wrede, D.J., Ludwig, B., Bister, D.*, et al.*** A randomized clinical trial comparing the impact of different oral hygiene protocols and sealant applications on plaque, gingival, and caries index scores. *Eur J Orthod* 2014; 36: 150-163.
18. **Spolsky, V.W., Gornbein, J.A.** Comparing measures of reliability for indices of gingivitis and plaque. *J Periodontol* 1996; 67: 853-859.
19. **Bratthall, D., Hänsel Petersson, G., Stjernswärd, J.** Plaque Index (PI) according to Silness-Loe. *Cariogram Manual*, 2004:39.
20. **Chetrus, V., ION, I.R.** Dental plaque – classification, formation and identification. *Int J Med Dent* 2013; 3: 139-143.
21. **Kolenbrander, P.E., Palmer, R.J., Jr., Periasamy, S., Jakubovics, N.S.** Oral multispecies biofilm development and the key role of cell-cell distance. *Nat Rev Microbiol* 2010; 8: 471-480.
22. **Volgenant, C.M.C., Fernandez y Mostajo, M., Rosema, N.A.M., van der Weijden, F.A., ten Cate, J.M.*, et al.*** Comparison of red autofluorescing plaque and disclosed plaque – a cross-sectional study. *Clin Oral Investig* 2016; Mar 18.
23. **Bittar, D.G., Pontes, L.R., Calvo, A.F., Novaes, T.F., Braga, M.M.*, et al.*** Is the red fluorescence of dental plaque related to its cariogenicity? *J Biomed Opt* 2014; 19: 065004.
24. **van der Veen, M.H., Volgenant, C.M.C., Keijser, B., ten Cate, J.B.M., Crielaard, W.** Dynamics of red fluorescent dental plaque during experimental gingivitis – A cohort study. *J Dent* 2016; 48: 71-76.
25. **Volgenant, C.M., van der Veen, M.H., de Soet, J.J., ten Cate, J.M.** Effect of metalloporphyrins on red autofluorescence from oral bacteria. *Eur J Oral Sci* 2013; 121: 156-161.

Survey of dentists to determine contemporary use of endodontic posts

Ahmed, S.N., Donovan, T.E., Ghuman, T.

Statement of problem: Although the scientific literature provides sound decision-making tools for the restoration of endodontically-treated teeth, dentists have different opinions on the rationale for the use of endodontic posts (dowels) and selection of post systems. The decision to place a post is at times contrary to the literature. Updated information on the treatment of endodontically-treated teeth among general dentists is lacking.

Purpose: The purpose of this survey was to gain insight into the rationale for choice of endodontic posts and the different endodontic post systems currently used by dental practitioners. Post and core restorations distribute stress and replace the missing tooth structure in endodontically-treated teeth. Guidelines exist to help select post systems. With the advent of new materials, prefabricated posts have gained popularity among dentists. However, cast-metal post-and-core systems are still considered the gold standard.

Material and methods: Surveys were distributed to dentists attending continuing education meetings in the United States, Canada, Scotland, Ireland, and Greece. The questions addressed years of practice, specialty training, and brand, type, shape, and material of the endodontic post systems used.

Results: Descriptive statistical analysis was used to assess the percentage of respondents. Some 92% of the participants were general practitioners, with 25.94 ±13.35 years of experience. The majority agreed upon using endodontic posts when insufficient coronal tooth structure remains and for stress distribution. Passive, parallel posts were the most commonly reported type and shape. With regard to post material, fibre posts were the most frequently used (72.2%), followed by prefabricated alloys (38.6%), cast-metal posts (33.9%), prefabricated titanium posts (30.1%), and stainless-steel posts (21.7%). For cementation, resin-modified glass ionomer (40%) was most frequently used, followed by self-adhesive resin (29.6%).

Conclusions: The majority of the practitioners used fibre posts. This may be because, in terms of fracture, they compare favourably with cast-metal post and core, although little evidence in the literature validates this claim.

J Prosthodont 2017; 117 (5): 642-645.

Randomised clinical trials on deep carious lesions: five-year follow-up

Bjørndal, L., Fransson, H., Bruun, G., Markvart, M., Kjældgaard, M., Näsman, P., et al.

Deep caries presents a dilemma in terms of which treatment will render an optimal prognosis by maintaining pulp vitality with an absence of apical pathology. Previously, two randomised clinical trials were performed, testing the short-term effects of stepwise carious tissue removal versus non-selective carious removal to hard dentin, with or without pulp exposure. The aim of this article was to report the five-year outcome on these previously-treated patients, having radiographically well-defined carious lesions extending into the pulpal quarter of the dentin, but with a well-defined radiodense zone between the carious lesion and the pulp. In this long-term study, 239 of 314 (76.2%) patients were analysed. The stepwise removal group had a significantly-higher proportion of success (60.2%) at five-year follow-up compared with the non-selective carious removal to hard dentin group (46.3%) (P = 0.031), when pulp exposures *per se* were included as failures. Pulp exposure rate was significantly lower in the stepwise carious removal group (21.2% v 35.5%; P = 0.014). Irrespective of pulp exposure status, the difference (13.3%) was still significant when sustained pulp vitality without apical radiolucency and unbearable pain was considered (95% confidence interval, 3.1-26.3, P = 0.045). After pulp exposure, only 9% (n = 4) of the analysed patients were assessed as successful, indicating that the prognosis is highly dubious following conventional pulp-capping procedures (direct pulp capping or partial pulpotomy) in deep carious lesions in adults. In conclusion, the stepwise carious removal group had a significantly higher proportion of pulps with sustained vitality, without apical radiolucency versus non-selective carious removal of deep carious lesions in adult teeth at five-year follow-up (ClinicalTrials.gov NCT00187837 and NCT00187850).

J Dent Res 2017; 96 (7): 747-753.

Changes in lip profile of edentulous patients after placement of maxillary implant-supported fixed prosthesis: is a wax try-in a reliable diagnostic tool?

Uhlendorf, Y., de Mattias Sartori, I.A., Melo, A.C.M., Uhlendorf, J.

Purpose: A diagnostic wax try-in has been recommended to correctly design the future prosthesis for edentulous maxillae and to predict its effect on the supporting oral tissues. The objectives of this study were to analyse: (1) the reliability of this diagnostic tool in planning fixed implant-supported prostheses; and, (2) the amount of prosthetic compensation required.

Materials and methods: Nine female patients participated in this prospective study (mean age, 53.6 years). After anamnesis, clinical examination, and preoperative analysis, the patients underwent preoperative prosthetic preparation, and the wax try-in was fabricated. To evaluate the efficiency of the diagnostic wax try-in, three profile cephalograms were taken of each patient: (1) with the initial conventional prosthesis; (2) with the wax try-in; and, (3) with the implant-supported prosthesis. Two analyses were carried out for the assessment of lip support: the nasolabial angle and Steiner's S-line. To analyse the amount of prosthetic compensation, two measurements – vertical and horizontal distances – were obtained for each wax try-in and final prosthesis.

Results: For Steiner's S-line, the results of the statistical tests indicated no significant difference between the initial and final prosthesis for the upper (P = 0.237) and lower lips (P = 0.237), and between the wax try-in and final prosthesis for the upper (P = 0.463) and lower lips (P = 0.463). Regarding the nasolabial angle, the results of the statistical tests indicated no significant difference between the initial and final prosthesis (P = 0.594), and between the wax try-in and final prosthesis (P = 0.800). Regarding prosthetic compensation, the results of the statistical test indicated no significant difference between the vertical (P = 0.753) and horizontal evaluations (P = 0.855) carried out for the wax try-in and those for the final prosthesis.

Conclusion: On the basis of the data collected, it was concluded that the methods of replacing muco-supported prostheses with implant-supported fixed prostheses were efficient at maintaining the original lip design. The wax try-in was capable of predicting the future lip design and the prosthetic compensation of the final prosthesis. More studies are required to consolidate these data.

Int J Oral Maxillofac Implants 2017; 32 (3): 593-597.

Poor response to periodontal treatment may predict future cardiovascular disease

Holmlund, A., Lampa, E., Lind, L.

Periodontal disease has been associated with cardiovascular disease (CVD), but whether the response to the treatment of periodontal disease affects this association has not been investigated in any large prospective study. Periodontal data obtained at baseline and one year after treatment were available in 5,297 individuals with remaining teeth, who were treated at a specialised clinic for periodontal disease. Poor response to treatment was defined as having >10% of sites with a probing pocket depth >4mm deep, and bleeding on probing at ≥20% of the sites one year after active treatment. Fatal/non-fatal incidence rate of CVD (composite end point of myocardial infarction, stroke, and heart failure) was obtained from the Swedish cause-of-death and hospital-discharge registers. Poisson regression analysis was performed to analyse future risk of CVD. During a median follow-up of 16.8 years (89,719 person-years at risk), those individuals who did not respond well to treatment (13.8% of the sample) had an increased incidence of CVD (n = 870), when compared with responders (23.6 vs. 15.3%; P < 0.001). When adjusting for calendar time, age, sex, educational level, smoking, and baseline values for bleeding on probing, probing pocket depth >4mm, and number of teeth, the incidence rate ratio for CVD among poor responders was 1.28 (95% CI, 1.07 to 1.53; P = 0.007) as opposed to good responders. The incidence rate ratio among poor responders increased to 1.39 (95% CI, 1.13 to 1.73; P = 0.002) for those with the most remaining teeth. Individuals who did not respond well to periodontal treatment had an increased risk for future CVD, indicating that successful periodontal treatment might influence progression of subclinical CVD.

J Dent Res 2017; 96 (7): 768-773.

QUIZ answers

Questions on page 184

1. Desquamative gingivitis. Note: desquamative gingivitis is a clinical descriptive term and not a diagnosis. It presents as an erythematous, desquamative (shedding), and often ulcerated condition of the free and/or attached gingiva. It is usually a dusky red colour and differentiates itself from marginal gingivitis by extending beyond the marginal gingiva, often involving the full width of the gingiva and on occasion extending into the alveolar mucosa.
2. Lichen planus (LP), pemphigus vulgaris (PV) and mucous membrane pemphigoid (MMP) are the most common underlying conditions.
3. The treatment involves both the symptomatic relief and treatment of any associated conditions. This includes:
   - oral hygiene instruction;
   - removal of plaque and calculus through debridement;
   - minimising irritation of the lesions; and,
   - specific tests and therapies for underlying disease.

A mucosal biopsy may be the most accurate way to confirm diagnosis of LP, PV or MMP. Symptomatic relief for LP may be achieved with topical steroid therapy and antiseptic mouthwashes. The patient should be reassured of the generally benign nature of the condition; however, regular monitoring is advised due to the link with oral cancer. Daily systemic steroid therapy is likely to be the treatment of choice for patients with PV or MMP.

SITUATIONS WANTED

Irish dentist available to work in the Cork city/county region or within a one-hour commute. Enthusiastic, friendly and over ten years' experience. Wide range of skills, days flexible, IDC registered, CPD complete. Email corkdentalassociate@gmail.com.

Dentist with 20+ years international experience available in NE for two to three days (Louth, north Dublin, Meath, Monaghan) dentist.available.ne@gmail.com.

SITUATIONS VACANT

Dentists

Exciting opportunity for three enthusiastic general dentists, also a dentist with an interest in endodontics, to join our new modern, well-equipped, fully computerised new clinics due to open mid July. Dublin north/south city centre clinics. Email CV to diamondsmilejobs@gmail.com.

Dublin. Full-time dental position available south west Dublin. Long-established, busy, modern, computerised practice. Please apply with CV to tullyhouse@gmail.com.

Part-time dentist required (two days per week) for Co. Galway practice, 15 minutes outside Galway city. Modern, computerised practice. Immediate start. Experience essential. Email galwaydent14@gmail.com.

Dublin south city centre. Experienced dentist required to join our friendly, multi-disciplinary team in award-winning, modern, computerised, private practice for part-time position – approximately two to three sessions per week (early mornings/late evenings). Email helen@portobellodental.com.

Part-time dentist required for family practice in north county Dublin. Some morning work but mainly afternoon and evening work available. Busy practice. Possibility of increasing hours or becoming a partner or owner. Email diarmuid33@gmail.com.

Dentist required for busy, friendly, modern north county Dublin practice. High earning potential in a relaxed working environment. Fully computerised, digital x-ray, microscope, etc., lab on site. Support available from endodontist, orthodontist and other experienced dentists. Email JHeeney@mail.com.

Friendly, confident full-time GDP to replace departing colleague 6km from Galway city. Ideally mid-August start but negotiable. Experience preferred. Please reply with CV to phewatal@eircom.net or call 086-820 5838.

Kilkenny. Experienced dentist required to replace departing colleague at thriving city centre practice. Fully developed and very busy book. Great opportunity for the right candidate. CVs to kilkennyassociate2017@gmail.com.

Busy, newly-refurbished practice in Dublin 4 looking for dentist with three+ years' experience to work one to two days per week with a view to full-time. Must have a strong focus on patient care and high-quality dentistry. Email Dentistjobd4@gmail.com.

Dublin – Smiles Dental is looking for a passionate dentist to join our well-established, busy, modern Smiles South Anne Street dental practice in Dublin 2. Must have strong general experience and be IDC registered. Five days per week. Email joanne.bonfield@smiles.co.uk.

Associates

Full-time associate dentist required to take over existing book in a busy dental practice on the outskirts of Galway city. Modern, fully computerised surgery. Contact Joan on 091-798333 or email CV to joan@claregalwaydentalsurgery.ie.

Galway city associate required with minimum two years' experience and extra training in endodontics. Fully digitalised, endo microscope with visiting specialists. Expand your clinical knowledge in a supportive environment. All terms flexible for right candidate. CVs to eliana@quaydental.ie.

Associate dentist, Essex, UK. Full-time position replacing existing associate (ex UCC graduate). Long-established practice. Monday to Friday. No late evenings/weekends. Non-corporate. Good rate (7,000UDAs). Email dockroaddental@gmail.com.

Experienced associate required for busy Westmeath practice. Part-time with the view to full-time in the near future. Generous remuneration. Due to our proximity to the motorway, an easy commute from Galway. Email: westmeathdentist@gmail.com.

Dental associate required for a part-time position in Co. Meath. Newly refurbished practice with excellent equipment and experienced support staff. Great long-term remuneration for the right candidate. Email careers@dentalcareireland.ie.

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Full-time dental associate required for busy dental practice based in Raheny. Replacing long-term associate. Full established book, private and medical card patients. Great position for long-term colleague. Email jackie.cheevers@gmail.com.

Full-time dental associate required for newly-refurbished practice in Co. Cavan. Full -established book, private and GMS patients. Lovely friendly working environment. Email info@ballyconnelldentalsurgery.com.

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Advertisements will only be accepted in writing via fax (01-295 0092), letter or email (fionnuala@irishdentalassoc.ie). Non-members must pre-pay for advertisements, which must arrive no later than **Friday, September 8, 2017**. Classified ads placed in the *Journal* are also published on our website www.dentist.ie for 12 weeks. **Please note that from the next edition, all adverts will be subject to VAT at 23%.**

Advert size	Members	Non-members
up to 25 words	€80	€160
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Ireland, north east, one hour from Dublin. Experienced associate required to replace departing colleague in long-established, seven-surgery, award-winning multi-disciplinary practice. Visiting consultant orthodontist, specialist oral surgeon, hygienist and excellent support staff. Please email drcolmsmith@gmail.com.

Full-time associate dentist required for busy, family-run practice. Friendly, modern, well-equipped mixed NHS/private practice in Brentwood, Essex. Established patient list, 7,000 UDAs + private. Start early September. Close London/Stansted airport/M25/Brentwood station. Email: johncuddigan@gmail.com.

Full-time dental associate required for busy dental practice based in Celbridge, Co. Kildare. State-of-the-art, newly-built facility for established practice. Full details to be found at https://1drv.ms/p/s!Au2G9pTl1owEkzIEHXifcviDfTSX. Email poboyleriverside@hotmail.com.

Associate position in Wexford Town – new surgery, OPG, full back-up – orthodontic and implant interest encouraged – August start – please send CV to Southeastdental46@gmail.com.

Associate dentist required to replace colleague departing after 12 years. Busy, modern practice in Tullamore town with good mix of private and GMS patients. Please contact delaneydentist@gmail.com.

Dental associate required in Newbridge for immediate start. Practice well established with good mix of private and GMS patients. Excellent dental nurses and friendly support team. Two years' experience preferred. Please reply to cegan@centrichealth.ie.

Associate wanted. Full-time. Start Sept/Dec. Very busy, mostly private, four-surgery practice. 30 minutes to Dublin. Fully computerised, great working conditions, excellent staff, etc. Experience much preferred. Long-term prospects for the right applicant. References/CV essential. Email ratoathdental@gmail.com.

Limerick City centre. Experienced associate dentist required long term to replace departing colleague. Good mix of private and public patients. Computerised. Excellent dental nurses and support team. Visiting periodontist. Email Eamonnnoonan@hotmail.com.

Locums

Locum dentist required for dental surgery in Limerick city centre, immediate start. Digital radiographs, cerec, CBCT, OPG, computerised records. Transfer of goodwill from a well-established retiring dentist. All private work. Please forward CVs to drodonovan@alexandradental.ie.

Locum required for six months' maternity cover to start November 2017. Very busy book, three or four days per week, Carrick-on-Shannon, Co. Leitrim. Experience essential. Email erhilldentalgerry@gmail.com.

Associate with experience required for part-time locum position in busy, modern general practice in Celbridge. Good mix of public and private patients. Three-day week beginning in October for four months. Email CV to brian.corcoran26@gmail.com.

Locum dentist required to cover maternity leave from mid September to end of January 2018 in Dublin 5 region general dental practice. Email: oconnordental@hotmail.com or call 086-172 6061.

Locum dentist wanted for immediate start in busy clinic in Limerick city. Please apply with CV to hickeyaudrey@hotmail.com.

Locum dentist required to cover from August 14 for two weeks in busy modern Meath practice with view to continued part-time work. Call Eileen on 046-902 2889, or email abbeydentalcare365@gmail.com.

Specialist/limited practice

Canada – St John's, Newfoundland. Paediatric dentist needed NOW. Looking for a dynamic, energetic and exceptionaly motivated paediatric dentist to join LOL dental, paediatric dentistry and orthodontics. Part-time or full-time. Renumeration: $1,200 per day guaranteed (Canadian funds) or 35% of net collection. Contact drlynanaseri@gmail.com.

Specialist wanted to join modern, fully equipped practice in Cork with two dentists, an orthodontist, and a dental hygienist. Good referral base for a periodontist. Email: catherinelorourke@gmail.com.

Exciting opportunity for an enthusiastic specialist orthodontist in Cork. Hours are flexible. It is a modern progressive practice. Candidates must have their IDC and specialist registration. CVs to info@browneortho.ie.

Prosthodontist required to join team in busy west Cork practice. Good referral base with exciting opportunity to develop. Days and hours are flexible. Email info@browneortho.ie.

Exciting opportunity for enthusiastic orthodontist to join modern, progressive dental practice in Co. Mayo. History of orthodontic services. Digital Orthophos x-rays, good referral base with exciting opportunity to develop. Days and hours flexible. Candidates must have IDC and specialist registration. Email info@tobindental.com.

Orthodontist required for sessions in Co. Wicklow practice to replace departing colleague. Practice has history of offering specialist orthodontist services for the previous six years and a growing patient base. Email ldental99@yahoo.ie.

Periodontist required to join a multidisciplinary team in north Dublin. Newly-expanded specialist practice looking to add to our well-established team. Applications can be sent to dentalspecialist8@gmail.com.

Associate orthodontist required for state-of-the-art modern practice in Dublin north. Two to three days a week. Associate rates of pay available. Call 087-151 5420, or email orthosull@gmail.com.

Orthodontist required for busy, state-of-the-art specialist practice in Waterford city. Three chairs. Flexible hours/days. Registered orthodontic therapists to help. CVs to info@parkorthodontics.ie.

Orthodontic therapists

Orthodontic therapist required to join an established orthodontic practice in north Dublin. Recently expanded state-of-the-art practice. Attractive package offered for the right candidate. Applications can be sent to dentalspecialist8@gmail.com.

Orthodontic/dental technicians

Full-time positions available for orthodontic and dental technicians. Fully-qualified technicians required with experience in the manufacturing of orthodontic appliances and acrylic dentures. Competitive salary, benefits and training. Please forward your CV and a cover letter by email to info@jburkeortholab.ie.

Dental nurses/practice managers/receptionists

Kilkenny. Part-time dental nurse sought for busy clinic in Kilkenny town centre. Approx. 20 hours to include Saturdays. Experience required. Generous terms for right candidate. CVs to kilkennydentaljob@gmail.com.

Limerick. Part-time dental nurse sought for busy private clinic in Dooradoyle. Approx. 20-25 hours to include Saturdays. Experience required. Generous terms for right candidate. CVs to limerickdentaljob@gmail.com.

Dental nurse wanted full-time in Waterford city – Monday to Friday – mixed ortho/GP practice – immediate start available – please send CV to Southeastdental46@gmail.com.

Position for a friendly, highly-motivated dental nurse to join a forward-thinking, professional team. Busy, modern, award-winning computerised practice in Co. Meath (approximately 35 minutes north of Dublin). Position available is for two to three Saturdays per month. Forward CVs to dentaljobireland1@gmail.com.

Experienced dental nurse required for maternity leave cover in Dublin 2. The ideal candidate will work with our periodontist in our specialist practice based in Dublin. Knowledge of Exact software is preferable. The start date will be September 2017. Remuneration and hours TBC. Email info@harcourtdentalclinic.ie.

Galway. Part-time dental nurse required for busy, friendly city centre practice. It would be an advantage to have experience at reception with good communication and computer skills. Please send enquiry or CV to info@galwaydentist.com.

Full-time dental nurse required for modern and friendly Limerick surgery. The post would include some Saturdays and evenings. Please send CV to racefielddental@gmail.com.

Part-time qualified dental nurse required for busy practice in Foxrock, Dublin 18, three days a week initially with a view to a full-time position in the future. Good communication and computer skills essential. Email admin@cdpractice.com.

Full-time, qualified dental nurse required to cover maternity leave. West Dublin area. Starting mid October. Please forward your CV to westdublindental@gmail.com.

Enthusiastic, qualified part-time dental nurse required for busy computerised dental practice in north Dublin. The successful applicant will be required to be flexible, computer literate and able to carry out reception duties. Reply by email to info@malahidedentalcare.ie.

Receptionist/practice administrator required three days/week in busy general dental practice on Main St, Dundrum. Please reply to dr.moroney@dentalclinic.ie.

Experienced dental nurse required for specialist dental clinic in Limerick city. Please send CV and cover letter to dentalnurserecruit@gmail.com.

We are seeking a full-time dental nurse to join our existing clinical team in our busy, modern and rapidly expanding private practice in south county Dublin. Experience is preferred. Email careers@deansgrangedental.ie.

Dental nurse. Full- and part-time positions available for a brand new orthodontic practice in Greystones opening August. Applicants must be qualified with experience, friendly, outgoing, energetic and patient focused. Please apply through our indeed job link – https://goo.gl/ockv8A, or email hello@smilesolutions.ie.

Dental nurse position available Gorey, Co. Wexford. Mondays, Thursdays and Fridays. Some reception work. Mixed practice. Email adecdental365@gmail.com.

Hygienists

Qualified dental hygienist required to cover maternity leave in the west Dublin area. Two days cover required per week, which can be flexible. Apply with CV to westdublindental@gmail.com.

Hygienist required for busy family practice in New Ross, Co. Wexford. Four days a week to include Saturdays. Experience desirable. Favourable T&Cs. Friendly supportive staff. Full book. Email info@rogersdental.ie.

Dental hygienist required for busy, three-centre practice in Limerick city. Apply to info@castletroydental.ie.

Dundalk – Smiles Dental is looking for an enthusiastic hygienist to join our modern, well-equipped, well-established practice in Dundalk. Position offers existing book. Days required are Mondays, Wednesdays and bi-weekly Saturdays. Candidates must be IDC registered. Email joanne.bonfield@smiles.co.uk.

Full-time hygienist required for busy modern practice in Callan, Co. Kilkenny. Fully-equipped surgery with an excellent support team. Both new graduates and experienced hygienists considered. Please send CV to grace@callandental.ie.

Experienced, gentle and caring hygienist required (part-time) for Dublin city northside, busy modern practice. All private patients. Please reply with CV to Chris O'Hanlon at kilbarrackdentalcare49@gmail.com.

Dental hygienist required for maternity cover from start of August for six months in busy Tipperary practice. One day a week either Tuesday or Wednesday. Please reply to dentalhygienistrequired25@gmail.com.

Wexford – Smiles Dental is looking for an enthusiastic hygienist to join our modern, well-equipped, well-established practice in Wexford. Position offers two to three days per week. Candidates must be IDC registered. Email joanne.bonfield@smiles.co.uk.

Enthusiastic, caring, experienced dental hygienist required for Fridays in a busy modern practice in Navan, Co. Meath. Reply with CVs to abbeydentalcare365@gmail.com.

Dental hygienist required for maternity cover for immediate start in busy Kilkenny city practice. Please reply to paul@deanstreetdental.ie.

We are seeking a full-time dental hygienist to join our existing hygiene team in our busy, modern and rapidly-expanding private practice in south county Dublin. Experience is preferred. Please send a cover letter and CV to careers@deansgrangedental.ie.

Full-time hygienist required for busy, friendly, modern, large north Dublin practice. Fully computerised. High earning potential. Good guaranteed salary plus unlimited commission. Paid holidays, flexible hours. Contact jheeney@mail.com.

Hygienist required for one day per week, Co. Galway practice, immediate start. CV to busy1dp@gmail.com.

One of Ireland's largest private dental clinics seeking dental hygienist for three to four days per week, including Saturdays and Sundays. To apply, please send your CV to jobs@carlowdentalcentre.ie with dental hygienist in the subject field.

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Spacious bright surgery to rent within a well-established dental practice in Dublin 4. Full administrative back-up, digital intra-oral imaging, electronic charting, very well appointed – would ideally suit established specialist dentist looking for a base. Email cog75@eircom.net.

Long-established, busy, two-man, three surgeries freehold or leasehold practice for sale in Dublin. Email martacus12@hotmail.com.

Wicklow town. Long-established expense-sharing practice for sale. Hygiene service, two surgeries in superb location. Contact steven@medaccount.ie or 01-280 6414.

Surgery available for a specialist to rent on a daily basis in a modern practice in Clare with four dentists. Contact gbrowne.ennis@gmail.com.

EQUIPMENT FOR SALE

For sale. Belmont handpiece wall unit. Trophy digital x-ray. Durr twin surgery compressor. Cavitron Plus with tips. All perfect condition. Contact Frank on 086-886 6637.

Warm and welcoming

DR MARCELA TORRES LEAVY is based in Kinnegad, Co. Westmeath, and found the IDA's support invaluable in completing her registration to work as a dentist in Ireland.

What led you to first get involved in the IDA?

I got involved in 2007 when I was preparing to sit the examinations for recognition of my qualifications by the Irish Dental Council. The IDA provided invaluable support and guidance, and enabled me to meet other dentists who were also sitting the exams. Since I had just moved to Ireland, I also wanted to learn how dentistry works here, so the IDA's resources were very helpful.

What form did that involvement take and how did it progress?

I was invited by a colleague to get involved and now I regularly attend meetings and seminars in Dublin, as the Midlands Branch is not active at the moment. I find the meetings really useful to learn, meet other dentists and share our experiences. I've participated in campaigns such as Mouth Cancer Awareness Day and think these are a great way to create awareness while providing services to the community. In the practice, we've used the classified ads service, and the dentist.ie website; the practice management section there is particularly useful. We have attended the practice management seminars as well, which provide important information on regulation and policy, for example the recent changes to the PRSI scheme.

What has your involvement in the Association meant to you?

Attending training and seminars has been extremely useful for me in many ways, particularly my continuing professional development. It has also been very useful for my team – I often bring them to the events as they provide guidance on HR, customer care and other aspects of practice management. This has also been great for team-building. I've also found IDA members to be very welcoming and friendly. As a foreign dentist it was critically important to me to find support – and the IDA has been like a family. It has given me the opportunity to share my own struggles with other dentists. It makes me feel less isolated and more integrated in the dental community. It's been a major part of my overall integration in Ireland, and made me more confident in managing my practice. I set up my practice, Kinnegad Dental, in 2012, during the recession, so there was enormous pressure to perform, and the IDA was very supportive. When I have a query the IDA is there to answer the most minor question, and it's been great knowing I'm not the first one to have a problem.

What has been the single biggest benefit of IDA membership for you?

The practical support and information are the best benefits, enabling me to keep up to date on trends, new techniques and policy developments in dental practice. Networking and meeting other dentists has also been an enormous benefit – I work in a small community and am the only dentist here, so it can be quite isolated. Through the IDA I've met an amazing network of dental professionals who have become friends. We share our experiences and insights and I've benefited greatly from this.

How would you like to see the Association progress into the future?

I hope the IDA will continue to strengthen its representation of the dental community with the HSE and Revenue to ensure that dentists are given a fair deal. We want to provide a high-quality service for public and private patients that is properly remunerated. I would also like them to continue to advocate for more investment in health promotion, particularly in small, rural communities.

Marcela is from Guatemala in Central America and moved to Ireland in 2007 after meeting her husband Aidan, who was working there for the United Nations. These days, running a practice and taking care of her two-year-old son Sebastian take up most of her time, but she also loves salsa dancing, cooking, music and travelling (last year, they took Sebastian to Guatemala to meet his Guatemalan family for the first time).

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