Volume 56 Number 4 August/September 2010

IDA
irish dental association

Journal of the Irish Dental Association

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GSKCH2010/0156

References: GSK data on file. Submitted for publication. 2. GSK data on file. Submitted for publication.
3. Banfield N and Addy M. J Clin Periodontol 2004; 31: 325–335. 4. GSK data on file.

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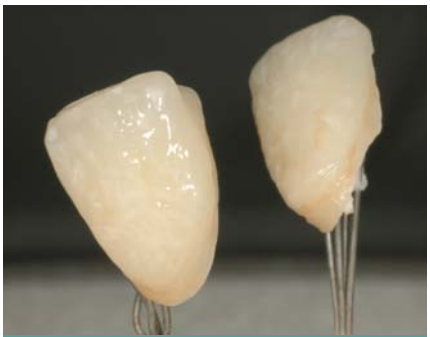

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1 Loesche WJ. Dental Caries: A Treatable Infection. Springfield, Illinois: Charles Thomas; 1982:64-66. 2 Amornchat C, Kraivaphan P, Triratana T. Mahidol Dent J. 2004;24:103-111. 3 Kruger IJ, Murphy CM, Sullivan RJ. Demonstration of the sustained effect of Colgate Total by confocal microscopy. Poster presented at: American Association for Dental Research; March 7-10, 2001; Chicago, IL. Abstract 1031.

Trade name of medicinal product: Colgate Total Toothpaste. **Active ingredients:** Triclosan 0.3% w/w, Sodium Fluoride 0.32% w/w (1450ppm F) **Indications:** To reduce dental caries, improve gingival health and reduce the progression of periodontitis. **Dosage and administration:** Brush the teeth for one minute twice daily. Children under 7, use a pea-sized amount. If using fluoride supplements, consult your Dentist. **Contraindications:** None Known. Individuals with known sensitivities should consult with their dentist before using. **Special warnings and special precautions for use:** Children under 7, use a pea-sized amount. If using fluoride supplements, consult your Dentist. **Interactions with other medicines:** None known. It is important to note that as for any fluoride containing toothpaste in children under systemic fluoride therapy, it is important to evaluate the total exposure to fluoride (fluorosis). **Undesirable effects:** None known. **Legal classification:** GSL. **Product authorisation number:** PA320/5/1. **Product authorisation holder:** Colgate-Palmolive (U.K.) Ltd, Guildford Business Park, Middleton Road, Guildford, Surrey GU2 8JZ. **Recommended retail price:** €1.59 (50ml tube), €2.59 (100ml tube). **Date of revision of text:** August 2009.

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Promising developments

Prof. Stassen highlights some of the many excellent initiatives taking place in dentistry, many of which are featured in this issue of the *Journal*.

This issue of the *Journal* will hopefully be well read as you rest and relax. The summer, so far, has been great, not sunny but the vegetables in the garden are thriving. We have all had a tough time and are certainly indebted to those who take the time and effort to negotiate on our behalf. They do not often get the credit for the efforts that they put in (pp.163/164/166/167). Thank you on behalf of our readership.

The Editorial Board has expanded slightly so that we now have strong representation from the dental schools in Dublin, Cork and Belfast. Colleagues have agreed to take on the roles of streamlining our review process for submissions received in their institutions. The Council of the IDA has approved the Editorial Board's governance structure and that's a big leap forward and hopefully will encourage others to be involved. More and more general practitioners are involved in referring papers for us and this is very encouraging for our future, particularly taking the tough financial times into consideration. Thank you to the GP Group.

Our President, Billy Davis, has written an excellent review of what is going on in the IDA (p.162). The Association's meeting with the Dental Council (p.167) was promising in particular the development of an alternative dispute resolution system and their advice on advertising, and a very good review on advertising your practice is given in our practice management section by Alasdair McKelvie (pp.194-195).

Congratulations to the Dublin Dental School final year undergraduate students (p.169) and final year postgraduate students (p.170). We look forward to receiving pictures from Cork and Belfast. It is amazing how a class can change from the days of study to the relaxed healthy looking young women and men at their graduation dinner. Good luck to them all.

Dr Stephen Fennell from the Radiological Protection Institute of Ireland (pp.172-174) explains the national rules and regulations and how best we can go about protecting our staff and patients. Good advice and easy to follow.

Dr Feeney keeps us up to date with the European position (pp.175-177) on amalgam, tooth whitening and dental funding. Interestingly there is an increase in funding in the UK. Our abstract section (pp.192-193) highlights two important papers on why dental care is so important and why it is an absolute disgrace and a short-sighted view that funding has been withdrawn from schemes to look after those who cannot afford dental treatment.

Try the quiz (pp.177 and 200) in this *Journal*; I did and learned a lot. Dr Sharkey writes an easy to follow fact file (pp196-199) on metal ceramic versus all ceramic restorations. The aim of this is to give readers an easy to follow presentation on important areas. If there are any particular areas that you are interested in hearing about, please let me know.

Our peer-reviewed section looks at a survey of the provision of crowns by dentists in Ireland (pp.178-185). This article highlights important points related to quality and infection control. Importantly, it suggests methods for us to improve our final aesthethic results. Our second paper on fresh-frozen bone: case series of a new grafting material for sinus lift and immediate implants (pp.186-191) shows us some of the international work in the area of implants. With care, consideration and impeccable infection control, this technique might save our patients considerable morbidity and cost. Both of these articles are from overseas authors and it is a pleasure to see the multiple of papers that we are now receiving from our international colleagues. All the *Journals* are available on the IDA website, www.dentist.ie. This is a very easy site to access and read, will eventually be used to contribute to our CPD (p.166) and will benefit us all greatly. Enjoy the summer.

Prof. Leo F. A. Stassen
Honorary Editor

PRESIDENT'S NEWS

IDA committees continue to work hard for members

DR BILLY DAVIS provides a timely reminder of the ongoing work of the many IDA groups and committees.

As I write my second President's News for the *Journal*, the chaos surrounding the HSE's changes to the medical card scheme continues. Great praise and appreciation is due to our colleagues Dr Martin Reid from Donegal and Dr James Turner from Wicklow for their legal challenge to the cuts to the DTSS. Shame on the Government who target those most vulnerable and most in need in our society and deny them the care and treatment they require, deserve and are entitled to.

The work of the Association for the past year has been primarily focused on resisting the cuts to the two State dental schemes, and the salary reductions and job freeze affecting our colleagues in the HSE. The severe reduction in spending on dental care in the country has affected those involved in all aspects of dentistry, and I have no doubt but that challenging times will continue in the autumn and winter ahead.

At this time of year, however, I believe it is important to bear in mind that the work of the Association continues, both through its representative functions and the promotion of policies that benefit dental practice and dental care for our patients. These functions would not be possible without the voluntary contributions of many members. As we strive to implement the various recommendations that came from our recent strategy review, many more will be required to commit so that we can continue to grow and improve as an organisation.

The two largest national representative groups, the GP Group and the PDS Group, continue to function in the interests of their colleagues in private and public practice.

The Recently Established Dentists Group, or the 'REDs' as they have become known, was set up a few months ago by young and recently established colleagues who were concerned that the interests of this section of the profession were not represented by the Association. They will be holding an interactive workshop for recently established dentists on October 30. It is heartening to see young members organising an important core group, which is the future of the Association.

The Quality and Patient Safety Committee is looking at developing our own workable guidelines, which practices of all sizes can follow in order to ensure compliance with the new standards being set by HIQA. This work will greatly facilitate our members in ensuring that their practices are functioning in harmony with the new regulations.

The Medical/Dental Group is involved with the development of closer links and looking at the common interests we have with the medical profession in ensuring that our patients receive optimum care.

The PR Committee has a busy schedule of events, including collaboration with Colgate for Colgate's Oral Health Month in September. It looks like being a much bigger and better event this year, as a number of new initiatives are being considered. Also in September, the Association will take a stand for the first time at the Ploughing Championships in Athy. This is one of the best attended events in the country, with almost 200,000 attending last year, and will be a great opportunity for the Association to promote the importance of oral health.

The Website Committee is at an advanced stage in the development of a new and exciting edition of the IDA website, which, when set up, will be the first port of call for patients looking for dentists and for information on oral health issues. In addition, it will continue to provide members with useful and necessary practical information and discussion forums where members can share thoughts and ideas. The new edition of the website will also have an e-commence function so we can book and pay for events like the Annual Conference and CPD online.

The CPD Committee has been very active in the development of a programme that will record and give notice of CPD events taking place around the country. This programme by Aurion Online Learning is now available to all members on www.dentist.ie.

The ten branch secretaries who organise local events for members throughout the country are finalising their programmes for the year and we hope to publish a list of the various events that, as well as being educational, will give us an opportunity to catch up with colleagues and top up our CPD.

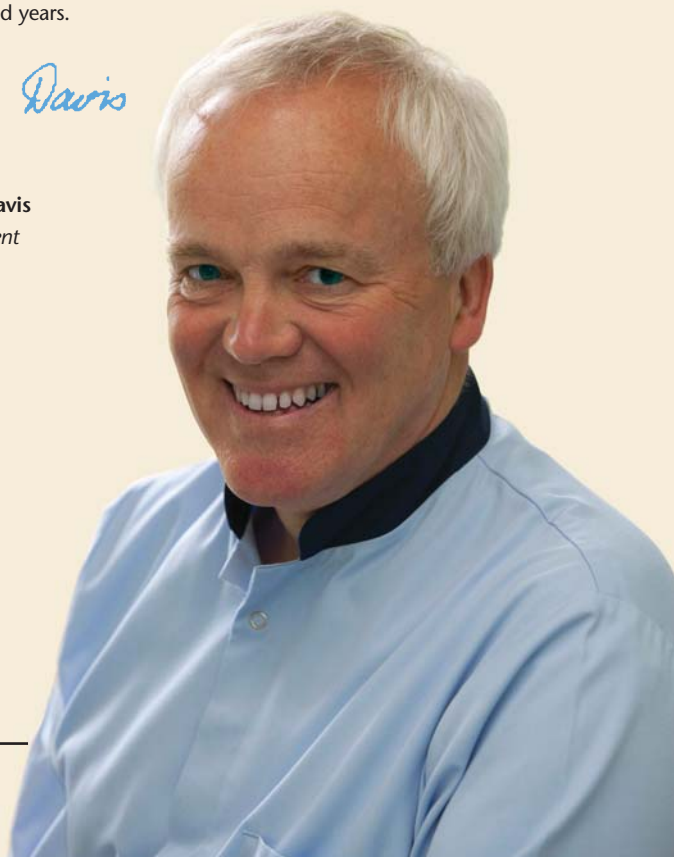
We are very appreciative of all members who volunteer their time and commitment to the work of these groups and committees.

Over the next few months, I hope you all get a chance to have a good break and get a chance to swim, swing, sail or fish, or do whatever is best to recharge your batteries and enjoy some of the welcome sunshine!

Finally, I extend congratulations to Dr Dympna Kavanagh on her appointment as Oral Health Lead for the HSE. We welcome her appointment and look forward to working with her over the coming months and years.

Billy Davis

Dr Billy Davis
IDA President



War of words follows Oireachtas hearing on medical cards crisis

Dentists tell TDs and Senators that the HSE's actions have caused chaos and hardship to patients; and react with anger to the comments made to the same Committee by the HSE.

The Association has told an Oireachtas Committee that the HSE's attack on the Medical Card Scheme has caused chaos, confusion and hardship to 1.6 million dental patients all over the country. In a submission to the Joint Committee on Health and Children, the IDA said it believed this suffering was entirely avoidable.

IDA representatives outlined to the Committee members how on April 27 the HSE issued a Circular (08/2010) without any warning, which, with immediate effect, restricted the Medical Card Scheme to emergency treatment only.

No notice period was provided to patients, or to dentists who hold a contract with the HSE. Since that date no clarity has been provided to patients, participating dentists or the HSE's own staff on the measures outlined in the Circular.

Fintan Hourihan, Chief Executive of the Association, said everyone knows that prevention is cheaper than cure, especially in the case of dental care. "Poor oral health and failure to treat leads to the development of more complicated problems, the treatment of which is generally more complex and more costly. So the slash and burn approach applied by the HSE to the Medical Card Scheme makes no financial sense as well as being an indictment of our care for the less well off in society," he said.

Mr Hourihan said the IDA was calling on the HSE to suspend the Circular with immediate effect, engage with the IDA and review alternative sources of funding. "That is the route map out of the present chaos and we need to act now before lasting damage is done to the dental health of the one-third of the population who are medical card holders," he concluded.

Anger at suggestions of consultation

Association officers, executives and members then reacted with anger to the suggestion that there had been consultation with the Irish Dental Association prior to the issuing of the controversial HSE Circular. The comments were made in the presentation by representatives of the HSE and the Department of Health and Children to the same Oireachtas Committee. This presentation followed the IDA's presentation and as the Association's representatives had already left the building, there was no opportunity to verbally respond to the suggestions by several speakers, including Patrick Burke, Assistant National Director of the HSE, that the Irish Dental Association was consulted on these cuts.

The Association's delegation, which comprised Fintan Hourihan, Drs John Nolan, Jane Renehan and Billy Davis and Clare Dowling makes its submission to the Joint Committee on Health and Children.

Fintan Hourihan immediately wrote to the Chairman of the Joint Dáil Committee, Sean O'Fearghail, TD, stating: "I wish to categorically state that at no stage was the Association consulted on the detail of the cuts announced in the circular issued by the HSE on April 27 last nor did the IDA have prior notice of the issue of the Circular itself."

He continued: "On April 27th 2010, Mr Patrick Burke communicated to the IDA the contents of a circular (which was to be issued with immediate effect to dentists and which contained severe cutbacks which essentially cause restriction of benefits to emergency treatment only) ... He commented yesterday that I had been advised of the issue of this circular at the time and his intention to meet with the Association but of course this ignores the fact that his offer to meet us, followed the issue of his circular rather than beforehand when alternatives could have been explored. Mr Burke's communication at this time was to inform the Association that the Circular was being issued to dentists; there was no suggestion of any consultations regarding the content of the Circular.

I wish to emphasise, again, that at no stage were these final proposals (HSE circular 08/2010) discussed with the Association." (See story on p164 - The disputed testimony - for a fuller account of the comments and the IDA response.)

A copy of the IDA submission and a transcript of the hearing of the Oireachtas Committee in regard to the DTSS and also a separate hearing regarding orthodontics and the quarterly update from Minister Harney and Professor Drumm is available to download from the IDA website.

Calling all final year dental students and recently graduated dentists

In association with the Metro Branch, the IDA is holding an information evening for final year dental students and recent graduates on Thursday September 16 at the Hilton Hotel, Charlemont Place, Dublin.

This informal 'meet and greet' event will start at 6.30pm when refreshments will be served. A short presentation will be made on the benefits of IDA membership. This is followed by the first Metro Branch meeting of the year, with a very worthwhile presentation from Fiona O'Shaugnessy, Practice Manager, Sandycove Dental Practice, on practice management.

The disputed testimony

As revealed on p163, a HSE official's testimony at an Oireachtas Committee caused outrage at the IDA.

Patrick Burke of the HSE testified before the Oireachtas Joint Committee on Health and Children on Tuesday July 13 last. Some of the comments he made have caused outrage within the dental profession. Here we present excerpts from his testimony, as transcribed by the Oireachtas. Following each of Patrick Burke's statements, we have a direct refutation taken from Fintan Hourihan's immediate and angry letter to the Chairman of the Committee.

Patrick Burke's statement:

"When the budget for 2010 was announced in 2009 consultation took place with the Irish Dental Association. At the relevant meeting, the representatives from the Irish Dental Association were privy to and had copies of our correspondence to the Secretary General in which we set out how we intended to move forward. I confirmed that in the past two weeks with the CEO of the Association."

Fintan Hourihan's letter:

The Association wrote to Minister Harney on December 21, 2009 and received a response on January 19, 2010 wherein the Minister stated "the HSE are currently examining a system of individual expenditure limits for participating DTSS dentists and I expect that they will be reverting to my Department shortly on the exact arrangements involved". The Association again wrote to the Minister… on January 29, 2010. The Association met with the Minister on March 3, 2010 and was advised that the Minister was awaiting final proposals from the HSE at that stage.

On the day following our meeting with the Minister in March (i.e., March 4, 2010) we recorded in writing our concern at the proposed cuts and asked that the Department would examine all alternative means of limiting the cutbacks in DTSS spending. In addition, we also offered once more to engage in an intensive period of negotiation on a revision of the contract but unfortunately the Association did not receive a response to this suggestion. At no stage did the Association receive any proposals for discussion and consideration from the HSE.

Patrick Burke's statement:

"I received a direction from the Secretary General to put in place arrangements to manage the scheme within budget and I immediately began to consult principal dental surgeons. I engaged with them on several occasions in January, February and March.

On April 1, I copied a draft of the circular, which we issued four weeks later, to the principal dental surgeons. On April 2, I received a sign-off in writing to the effect that I had addressed all of their concerns."

Fintan Hourihan's letter:

Mr Burke also suggested in yesterday's session that he had received an endorsement of his proposals in an email from four lead Principal Dental Surgeons in the HSE dated April 2, 2010. In fact the IDA has been informed the same four Principal Dental Surgeons wrote to the Regional Directors of Operations within the HSE on April 30, 2010 stating that "implementation of the circular, in our opinion, gives rise to significant governance, management and operational risk issues". Therefore, it would appear that it is incorrect to suggest that Mr Burke had the support of the four Principal Dental Surgeons employed to advise the HSE on the Medical Card Scheme for what became circular 08/2010. Mr Burke has indicated that he had been in constant discussion with the dentists concerned. Of course any dentists Mr Burke did discuss matters with (and we are not aware of any) would have been consulted solely in a personal capacity and not as representatives of the IDA. Mr Burke also does not appear to have referred to the fact that at no stage was the Irish Dental Association, as the representative body, invited by the HSE to discuss ways in which savings could be made regarding the operation of the DTSS.

To compound and reinforce their concerns the same quartet of dentists wrote to the Regional Directors of Operations in the HSE two months after Mr Burke issued his circular to reiterate their concerns.

It is important to clarify for the Committee that the Irish Dental Association was not privy to any discussions or correspondence that took place between Mr Burke and the four Principal Dental Surgeons. This communication could therefore not possibly constitute "consultation" with the Association.

Patrick Burke's statement:

"In the interim, I have offered, in writing, to meet the principal dental surgeons without either preconditions or prejudice. However, they have a number of preconditions, the basis of which is that there should be no change, that supplementary funding should be provided or that the money should be taken from elsewhere in the HSE's budget. These are not things that are acceptable for any meeting. I do not know the status of this submission to the committee but I know the status of three affidavits I have sworn to the High Court. Everything I said over the past few minutes is contained in them and much more, particularly the exhibits I talked about and the terms of the circular being signed off on April 2. For someone to say there was no consultation, in light of all that, is pushing it out. It might be no harm for the committee to have copies of the affidavits because there is useful information in them."

Fintan Hourihan's letter:

I am surprised at Mr Burke's offer to supply the Committee with copies of affidavits sworn by himself in regard to the ongoing legal challenge to these cuts by Drs Martin Reid and James Turner. In the event that your Committee accepts such affidavits from Mr Burke, consideration should also be given to obtaining consent from Drs Reid and Turner to submit their affidavits in which they dispute Mr Burke's evidence. We attach a copy of the Judgment of Miss Justice Laffoy in the High Court Injunction (which is a document of public record) and in which the learned trial judge deals with the weight to be attached to the affidavits and their probative value.

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1. Study 103-0193. Data on file 1, McNEIL-PPC, Inc. **2.** Study 103-0196. Data on file 2, McNEIL-PPC, Inc. **3.** Tanzer JM et al. J Dent Ed 2004; 65(10): 1028-37.
4. Data on file A, McNEIL-PPC, Inc. **5.** Sharma NC et al. J Am Dent Assoc 2004; 135: 496-504.

International College of Dentists

From left: Dr Owen Thompson; Dr Tom Feeney; Dr David McCaughey; and, Dr Conor McAlister.

The 55th Annual Meeting of the European Section of the International College of Dentists was recently held in Maastricht, with the Benelux District organising the event. New Irish Fellows inducted at the meeting were: Dr Conor McAlister, Dr David McCaughey and Dr Owen Thompson.

New Oral Health Lead for HSE

Limerick-based dental professional Dympna Kavanagh was recently appointed Oral Health Lead for the Health Service Executive (HSE). Dympna was formerly HSE Principal Dental Surgeon for the Limerick/North Tipperary area. A graduate of University College Cork Dental School, Dr Kavanagh's main focus in her new post will be on the implementation of a strategic review of the Dental Services, which is currently being finalised. She will work out of both Limerick and Dublin.

A native of Co Tipperary, she holds a PhD in Preventive and Paediatric Dentistry. Following graduation Dympna completed her training in dental public health in Guys Hospital, King's College, London where she worked as a Senior Registrar and Lecturer. Dr Kavanagh returned to Ireland in 2001 taking up a post with the Mid Western Health Board briefly as a Project Officer and then as a General Manager.

She took up the post of Principal Dental Surgeon for the Limerick/North Tipperary area in 2003. In recent years Dr Kavanagh has also worked in HSE Corporate for the Quality and Risk section of the former Primary, Community and Continuing Care Directorate.

Captain's Prize golf

The IDA Golf Society will hold its annual Captain's Prize (Gerry Kilfeather) outing on Saturday September 4 at the Carlow Golf Club. Tee times are from 11.00am-1.00pm. All enquiries to Ciaran Allen, Tel: 086-833 7318, Email: ciaran.allen454@gmail.com. Sponsored by 3i Biomet.

Irish Dental Association welcomes Supreme Court ruling

Fintan Hourihan, CEO, and Dr James Turner address the media outside the High Court following the granting of the injunction against the HSE.

The Irish Dental Association (IDA) has warmly welcomed the decision by the Supreme Court to restore the High Court injunction restraining the HSE from unilaterally varying its contract with two dentists under the medical card dental scheme.

The IDA is fully supporting the case taken by Dr Martin Reid and Dr James Turner against the HSE.

The IDA believes that if the HSE is allowed to proceed to restrict the medical card dental scheme to one that only provides limited emergency dental treatment for patients, this will have a devastating impact on the 1.6 million people who hold medical cards.

Fintan Hourihan, CEO of the IDA, said the Association was extremely concerned about the implications of these savage cuts for these patients, the dental health of the country as a whole and the dentists who made this scheme work so efficiently and effectively.

"Three months ago we described the HSE's move as unsafe, unworkable and unethical. We said it would hit the most vulnerable in our society as well as setting back the dental health of the nation by decades. We also said that the cuts did not make any financial sense, as every case of delayed treatment would require hugely expensive treatment in future years. The IDA welcomes the Supreme Court's decision today and hopefully this will concentrate minds in the HSE," he said.

IDA CPD Centre goes live

The IDA's online CPD Centre went live on Friday July 9. This online system, which is exclusive to IDA members, will allow members to record and reflect on their CPD programme and will in time allow them access to approved online educational programmes.

To log on, go to www.dentist.ie, go to the Members' Only area of the site and follow the instructions for CPD.

Association meets with Dental Council

The Association and the Dental Council met recently to discuss matters of mutual concern. The following is a brief summary of some of the items discussed.

The Council confirmed that the existing Council's term of office will expire in early November and that elections will be necessary in September/October. The notice of elections is likely to be circulated in the first week of September and the election count will take place towards the end of October, with the new Council meeting in the first week of November. The existing arrangements will continue whereby seven dentists will be elected and 12 other Council members will be nominated.

OPGs

The Council's Fitness to Practice chairman, Dr Terry Farrelly, confirmed that dentists need a prescription to take an X-ray and dentists should not take an X-ray without reason or without prescribing. The Council will act where complaints are received in regard to this matter.

In regard to complaints relating to treatment outside the jurisdiction, the President of the Dental Council, Dr Holohan, confirmed that agreement is now being reached that the Dental Council can advocate on behalf of a patient with authority if there is a case to answer where that patient has received treatment outside the jurisdiction.

Alternative dispute resolution

Association President Dr Billy Davis outlined the ongoing work of the Association, which hopes to see the introduction of an alternative dispute resolution system within the year. The Council advised that already in the first three months of the year 101 complaints have been received. The Council representative explained that most of the problems relate to poor communications and poor treatment. It was also noted that there will be need for further engagement between the Association and the Council on a range of other significant outstanding issues.

Specialist Register

The Council confirmed that the Department of Health and Children needs to sanction any further divisions of the Specialist Register and that paediatric dentistry and special needs dentistry are most likely to be sanctioned. Up to now, concerns have largely related to the salary implications for extending the Register. The Council confirmed that it would aspire to see all specialties being recognised and noted that the enlargement of the Specialist Register is intended to offer greater public safety assurances. Unfortunately, this is not seen as a priority within the Department of Health and Children.

"The Council confirmed that all advertising must be factual, cannot impugn colleagues, and cannot exploit the ignorance of the public."

Advertising

There was an extensive discussion on the new code published by the Council in relation to public relations and advertising. The Council confirmed that all advertising must be factual, cannot impugn colleagues, and cannot exploit the ignorance of the public. They noted that it ought to be clearly established who runs a dental practice and that, where aftercare treatment is provided, this should be clearly explained and the person providing such treatment should also be clearly identified.

The Council representatives warned of the dangers associated with suggestions such as the provision of lifetime guarantees for treatment, suggestions that amalgam removal will address MS problems or other matters.

The Association is also given to understand that the Council is investigating the provision of botox treatment by dentists and also referrals relating to botox.

The Council also warned that the implication that a dentist has a particular specialty or is a member of an organisation that implies a specialist expertise also gave rise for concern and they warned that persistent use of untruthful statements will be taken up by the Dental Council. The Council confirmed that the use of generic photographs is a matter for concern and that real rather than generic stock photographs must be used in advertising.

Get connected to the IDA

A great deal of communication from the Association's officers and executives now takes place electronically and the good news is that it's easy to connect to the Association.

Please make sure that you advise us of your email address so that we can include you on our various information bulletins in email. On average we issue detailed circulars almost twice a week to IDA members.

Connect:

- via email: send an email to us at info@irishdentalassoc.ie from your email indicating that you wish to receive information by email;
- via Facebook: connect with us on Facebook by going onto our website www.dentist.ie and clicking on the Facebook icon on the top right of our home page;
- via Twitter: connect with us on Twitter at http://twitter.com/Irishdentists, or by going onto our website www.dentist.ie and clicking on the Twitter icon on the top right of our home page.

Dear Editor,
I would like to congratulate all those who contributed to the excellent overview of diabetes and how it is relevant to dentistry. I think it is worthwhile to contribute a comment on the mechanism of delayed healing and increased infection in poorly controlled diabetics, for example post dento-alveolar surgery. Raised glucose levels impair the immune response by causing neutrophil and lymphocyte hypofunction. Chemotaxis and phagocytosis in the wound are also reduced. Blood flow through the microvasculature at the wound edge is impaired, as is the release of oxygen by haemoglobin. The reduction in oxygen and nutrient levels, together with the slower recruitment of cells, delays healing and makes the wound vulnerable to bacterial infection. From this it can be seen that as long as glucose levels are well controlled post-operatively, a diabetic patient should not experience a different outcome to a non-diabetic patient.

Yours sincerely,
Justin Moloney
Department of Oral and Maxillofacial Surgery
Lincoln Place
Dublin 2

Munster Branch ASM

This year's Munster Branch Annual Scientific Meeting will take place on Friday November 12 at the Fota Island Hotel and Spa, Co. Cork. Registration is from 8.30-9.00am. Speakers include Professor Richard Ibbetson, Dr David Klaff, Dr Edward Cotter and Mairead Cashman.
A full trade show will also be available. John Kelly will give a presentation entitled 'The Munster Rugby Experience' at 4.00pm to conclude proceedings.
Registration forms will be available shortly. Discounted rates will apply for IDA members.

Under Ben Bulben

This year, the annual Public Dental Surgeons Seminar will take place in the home of Yeats. The event will take place from October 6-8, 2010, in the Clarion Hotel in beautiful Sligo.
This key event in the calendar of those working in the public sector is open to all members of the dental team including dental surgeons, dental nurses and dental hygienists.
The programme features distinguished national and international speakers, including: Dr Eric Whaites, Consultant Radiologist at Guys Hospital, London; Dr David Hussey, Consultant in Restorative Dentistry at Queens University Belfast; Dr Chris Johnston, Consultant Orthodontist, Royal Hospital Belfast; Dr Brid Hendron, General Dental Practitioner; and, Michael Donaldson, Head of Dental Services, Northern Ireland Health and Social Care Board.
We are especially delighted to welcome back Professor Monty Duggal, leading Paediatric Consultant from Leeds, to this year's event.
On the home front Drs Nick Armstrong, David Ryan and John Dermody will also present. State Pathologist Dr Marie Cassidy will attend on Thursday October 7 (schedule pending), along with Dr Tom Boyce, a dental and medical practitioner from Donegal.
The Annual Dinner will take place on Thursday October 7, and promises to be a fun-packed evening. And there will be some other surprises along the way!
See you in Sligo in October!

Nobel abutments for non-Nobel Biocare implant systems

According to the company, NobelProcera CAD/CAM abutments are now available for other major implant systems, including an extended warranty, as well as Nobel Biocare platforms. The company claims that NobelProcera individualised abutments can be designed for all indications providing excellent aesthetics and long-term tissue health. It states: "NobelProcera abutments are individually manufactured from biocompatible materials that are certified for excellent strength and homogeneity: zirconia (in four shades) and titanium.
For optimum connection to the implant interface, each abutment undergoes extensive science-based design, testing and evaluation to ensure superior precision of fit and guaranteed quality. Measurements are done with highly advanced equipment according to industry standards. Product specification verification is performed on a regular basis to confirm continued platform and device compatibility. The high quality of NobelProcera abutment design ensures proper seating and surface contact with implant interfaces providing a secure connection with anti-rotational support. Extensive testing shows uncompromised micro sealing between NobelProcera abutments and implants that prevents bacteria while ensuring strength and stability.
NobelProcera products for non-Nobel Biocare platforms are, like all NobelProcera products, milled in state-of-the-art industrial manufacturing plants. Nobel Biocare production facilities are ISO certified and subject to inspection by BSI and US FDA. All NobelProcera products are cleared by the FDA. Industrial fabrication ensures standard operating procedures and material control following highest quality requirements. NobelProcera abutments for Nobel Biocare and non-Nobel Biocare implant platforms meet all standards for accuracy and precision of fit."

Class of 2010 – Dublin

Photo courtesy of Aoife Giles

The graduating class of 2010 from the Dublin Dental School and Hospital, with the Dean.
Front row, from left: Katie Burke; Treasa Callaghan; Gillian Sherlock; Professor June Nunn; Lorna Mohan; Laura Fee; and Farya Domah.
Middle row, from left: Mary O'Keeffe; Aisling Donnelly; Riona Gorman; Sinead Cooney; Caitriona Kieran; Clara Gibson; Niamh Galligan; Sarah Flannery; Darshini Ramasubbu; Aiyat Elsherif; and, Kim Mei Han.
Back row, from left: Topo Onkgopotse Kewagamang; Edward Finnegan; Philip Mulholland; Chaitanya Sanapala; John Ahern; Mohit Kumar; Conor O'Hara; Patrick John Henry; Yousef Khaja; Robert Kelly; Geoff Tait; and, Hilary Meaney.

Colgate check-up offer

Aoife Moran, Professional Relations Manager, Colgate.

As part of the Colgate Oral Health Month activities, Colgate is offering patients re-imbursement, up to the value of €65, of the cost of their check-up in the month of September. In order to avail of this offer, patients need to purchase a Colgate Oral Health Care Regime. This consists of two Colgate 360° Whole Mouth Clean toothbrushes; a Colgate Plax 500ml mouthwash; and, a Colgate Total 100ml toothpaste.

The patient keeps the receipt for both the Colgate products and for the cost of the check-up (for which they pay as normal). They return both receipts to Colgate using the claim form, which they can download from Colgate's website (www.colgateohm.ie); and Colgate re-imburses the cost of the check-up. Details of the promotion are on the wraparound with this edition of the *Journal*. Professional Relations Manager for Colgate, Aoife Moran, said: "Our commitment at Colgate is to improve the oral health of the population. Our offering for the month of September is our attempt to encourage patients to avail of important check-ups with their dentists."

Sex and the City scores for DMI

Drs Derval (left) and Avril O'Connell of Castleisland, Co. Kerry, received their Manolo Blahniks from Rita Melvin (centre) of DMI, following their win in the DMI consumables Sex and the City *promotion.*

DMI recently ran a promotion in which dentists could win a pair of fabulous Manolo Blahniks. For every €500 worth of consumables purchased, dentists would receive a ticket into a draw for one of four pairs of the shoes, which came to fame as a result of the *Sex and the City* television series. The winners of the shoes were: Drs Derval and Avril O'Connell, Castleisland, Co. Kerry; Dr John Heaney, Ballyfermot, Dublin 10; Dr Jason McEvaddy, Salthill, Galway; and Dr Paul Nolan, Drogheda, Co. Louth.

Cancer awareness

The Mouth, Head and Neck Cancer Awareness Group is promoting a free Mouth, Head and Neck Cancer Screening Day on September 29 in Dublin Dental School and Hospital and Cork Dental Hospital. Full details are being prepared at present but the event will include a free, drop-in, painless mouth examination. The theme for the campaign is: "If in doubt, get checked out!"

A Mouth, Head and Neck Cancer Awareness leaflet is being developed in collaboration with the Irish Cancer Society and it is hoped to have this ready for the day. Any dentist that might want to have copies of this leaflet can contact Pheena Kenny, Health Promotion Officer with the Dental Health Foundation in Dublin.

Dublin Postgraduate Class of 2010

Front (all from left): Dr Shaunine Gallagher (Paediatric Dentistry); Dr Jennifer Kearney (Periodontics); and, Dr Rebecca Carville (Prosthodontics). Middle: Dr Naomi Rahman (Oral Surgery); and, Dr Eimear Norton (Paediatric Dentistry). Back: Dr Caoimhin MacGhiolla Phadraig (Special Needs Dentistry); Dr Seamus Rogers (Oral Surgery); Dr Padraig McAuliffe (Prosthodontics); and, Dr Lewis Winning (Periodontics).

The Dental Plan appoints Coyle

Kevin Coyle joins the team as marketing director at The Dental Plan.

Kevin Coyle has been appointed marketing director of The Dental Plan. He trained and qualified in marketing in London in the mid 1990s. Following a successful decade in the insurance sector, he moved into the dental sector."Having seen the outstanding systems and processes offered to clients by Dr John Barry, Dr Kenny Barr, Dr Andrew Toy, Dr Jamie Newlands and their office-based support staff, I knew I wanted to be a part of their team. The offering is simple. Great service and great support backing up a great service proposition. I look forward to helping clients attract and retain patients, increase practice revenues, improve systems and processes, and generally make their practice a more enjoyable working environment."

There is only one right direction for Ireland

When it comes to dental plans, there is only one right direction for Ireland. The Dental Plan was created by, and is owned and run by, dentists. We understand that there are other plan companies, however The Dental Plan is unique in the expertise, experience and size of the Irish based team we have.

We are not just one of the options for Ireland; we are **THE** option for Ireland. And we offer more than simply a dental plan administration service. We offer a host of services including consultancy, marketing advice, business support and our unique quality management system.

Due to our recent growth we have strengthened both our back-office team and our field based team to offer an excellent level of customer service. Indeed you may already know some of our Irish team from the many years they have spent in the Irish dental profession.

We would be delighted to visit your practice and carry out an assessment of how a dental plan could help increase your profitability. Call us on **01 526 2556** to arrange an appointment. We are not just a dental plan, we are **THE** Dental Plan.

The Right Direction Seminars

We are delighted to announce a series of seminars called 'The Right Direction'. The seminars will have well known independent Irish experts offering their advice and support on their areas of expertise including;

Dr. Garry Heavey – *Real practice management*
Dr. Niall Jennings – *The state of play in Irish Dentistry*
Medaccount – *Looking after you practice finances*
Dr. John Barry – *Increasing profitability in your practice*
Kevin Coyle – *Marketing your practice.*

At least three of the above speakers will be presenting at each event and the dates are;

Monday 6th September – *Dublin*
Tuesday 7th September – *Limerick*
Wednesday 8th September – *Galway*
Thursday 9th September – *Sligo*
Friday 10th September – *Cork*

You will also get a chance to meet our new team members Padraig Riordan and Greg Ballantyne. To book a place call **01 526 2556** or e-mail **JanIves@thedentalplan.co.uk**

INTERVIEW

X-rays needn't be x-rated

ANN-MARIE HARDIMAN spoke to Stephen Fennell of the Radiological Protection Institute of Ireland about some of the issues surrounding dental radiography in Ireland.

Dr Stephen Fennell

Dental radiography is just one of many areas where recent changes in regulations have impacted on dental practice. One of the most important bodies in this regulation process is the Radiological Protection Institute of Ireland (RPII). Dr Stephen Fennell of the RPII's Regulatory Services Division sums up the RPII's role: "The RPII is the national competent authority for everything to do with ionising radiation in Ireland, with the exception of regulating medical exposures. The RPII's responsibilities range from monitoring radiation levels in our marine and terrestrial environment to measuring radon in people's homes, as well as providing information and advice to the government in the event of a nuclear accident. It is also responsible for the licensing of all sources of ionising radiation in Ireland".

Legislation

The licensing system is where the dental profession first interacts with the RPII as any professional or organisation wishing to have an X-ray machine on their premises must obtain a license from the RPII. However, the RPII's remit in this area is very specific. There are two pieces of legislation governing the use of ionising radiation in the context of medical and dental exposures which are relevant to dentists – Statutory Instrument (SI) No. 125 of 2000, and SI No. 478 of 2002. The RPII is the competent authority for the first of these.

"The remit of the RPII is to make sure that workers, including dentists and all the staff that work with them, and members of the public, including anybody who is sitting in the waiting room of a dental practice, are protected against the risks from ionising radiation."

However, in terms of the regulations, as soon as a member of the public moves from the waiting room to the dentist's chair they become a patient, and are covered by the second piece of legislation, SI 478, which is the responsibility of the Minister for Health and Children and not the RPII. In practice this means that SI No. 125, and the RPII, are concerned with the protection of workers and members of the public, whereas SI No. 478 concerns itself with the protection of the patient.

Dr Fennell acknowledges that this can be confusing for dentists, as there are overlaps in the legislation and it can be difficult at times to make a clear distinction between the two. He further clarifies: "In order to take any medical X-rays in Ireland, including dental X-rays, the dentist is required to comply with both SI 125 and SI 478. Under SI 125 they are required to have a licence for the custody and use of their X-ray equipment, and to ensure that their facilities provide adequate protection for staff and the public, but that doesn't automatically allow them to take X-rays of patients. It just entitles them to have the equipment on their premises and to use it".

The RPII is working closely with the HSE to bring better harmony to the application of both sets of regulations, which will make it easier for dentists to comply with all their legal and statutory responsibilities. To this end, the RPII is currently revising its dental code of practice. These guidelines were last published in 1996 and set out the dentist's responsibilities in complying with legislation. Dr Fennell explains: "We've commenced a process to review and update it involving the HSE, the Dental Council and a number of other stakeholders, to try and come up with one combined code of practice that addresses both sets of legislation. Once this code is published, dentists will have just one document that they have to refer to, which will assist them in ensuring that they are compliant with both sets of statutory instruments".

Inspections

The RPII carries out about 200 inspections a year across all sectors. In addition, each year the RPII identifies particular sectors that it concentrates its inspection activities in, and this year one of the areas that inspectors will look at is the dental sector. Dentists are generally notified in advance that an inspection is to take place, although the RPII can carry out an inspection unannounced. The inspections follow a set pattern.

"Generally we will sit down with the dentist and have a discussion about radiation protection in their practice with the focus on the protection of workers and members of the public. The inspection does not consider

clinical practice or issues relating to the protection of the patient. We'll discuss how they use their X-ray unit and we'll review their records relating to these units. Then, we will carry out a few spot check measurements on some of the units to see if they are operating as they should be. When we've finished we will always explain our findings to the dentist – what they mean and the implications – and when we go back to the office we issue a formal report to the dentist."

The RPII report categorises inspection findings into three general sections:

1. Non-compliances

Anything that is not meeting either a requirement of the legislation or a condition attached to the licence is deemed to be non-compliance and the dentist must take action to address this.

2. Items requiring attention

While these issues may not refer to a specific requirement of the legislation or licence conditions, nevertheless they are items that the dentist needs to address to further improve radiation safety.

3. Recommendations

These are examples of good practice that the dentist should consider implementing. They are not mandatory, but are rather suggestions based on approaches the inspectors may have seen working well in other practices, for example positioning the X-ray unit in another part of the surgery to further improve radiation safety.

Dr Fennell is anxious to reassure dentists as to the purpose of the inspections.

"When we do an inspection of a dental practice, we do not set out to find faults. Instead, our aim is to assess radiation safety arrangements and, where we can see room for improvement, we discuss the merit of these improvements with the dentist. We're trying to work with dentists to ensure that standards are as good as they can be. I know that inspections can be something that people fear, but where we've inspected a dental practice and we're able to tell the dentist that his or her radiation protection arrangements are very good, or that they need to just do a few little things to improve, this should be seen as a positive initiative. In fact when the inspection is finished many dentists are reassured that everything is in order and that their staff and members of the public are adequately protected from the hazards associated with X-rays."

Indeed, the experience of the inspectors so far has been very positive. "Overall it would appear that dental radiology is being carried out safely in Ireland though there is always room for improvement. If an RPII inspector came across a situation where there is a danger to the

public or to workers he or she can issue a 'Direction' to the dentist. A Direction is legally binding and requires the dentist to either perform or refrain from performing a particular course of action in order to alleviate the danger. It is reassuring to note that the RPII has not had to issue a Direction to any dental practice in recent years."

Once the dentist receives the inspection report they are required to respond within 28 days and advise the RPII as to how they plan to address the issues raised, and this is followed up by the RPII.

Radiation protection advisers

Dr Fennell attributes the success of this process in part to the RPII's introduction of a requirement that all dental practices must appoint a Radiation Protection Adviser (RPA). The RPA carries out an assessment of the facility to make sure that it is suitable for dental radiography and also carries out quality assurance (QA) tests on the X-ray units to ensure that they continue to operate correctly. The RPII is encouraged that every dental licensee has now appointed an RPA, and feels that this has further strengthened the radiation protection framework for dentists.

The annual licence fee to the RPII is €299 and licences are usually issued on a four-yearly basis. The RPII has no role in relation to the setting of the RPA's fees, as this is a matter between the dentist and the RPA. While the RPII is responsible for approving individuals to act as an RPA it is important to note that the role of the RPA is to advise the dentist on how to comply with their statutory responsibilities.

"We have an RPA assessment committee, which assesses applicants wishing to be included on the RPII RPA register against set criteria. They must have seven years radiation protection experience in a medical or dental environment; hold a degree in a physical science; and, demonstrate their knowledge and expertise in a number of core competencies set out by the European Commission. If an applicant is successful they are included on the RPII's RPA register for five years."

At the moment, 11 registered RPAs have made themselves available to provide advisory services to dental practices, so dentists can contact some or all of these and arrange to appoint one to their practice.

Ongoing developments

The RPII continues to maintain relationships with the bodies representing the dental profession. The Dental Council has a representative on the board of the RPII, and representatives from the RPII attended the 2006 and 2008 IDA Annual Conferences. In March of this year Dr Fennell also addressed the Metropolitan Branch in Dublin. The RPII also informs the IDA of any new developments.

At the moment, the major focus is on the revision of the dental code of practice. However, in the meantime, two issues that are seen as priorities will feature in a guidance that the RPII hopes to issue in the autumn.

"The first is the requirement for dentists to have lead aprons: this is a question that comes up regularly during our inspections. The other is the requirement for personal dosimetry for all staff. We recognise that these are the big issues and we are currently reviewing our policy on these in the context of the revision of the code of practice. However, the current position remains that dentists are still required to use personal dosimetry. I hope that we will have completed our work by the end of the summer and we will communicate the results to dentists."

The first draft of the revised code is almost complete, and the revision process will then begin. This may be a lengthy process, but will hopefully lead to a document that provides clarity for dental professionals, their staff and patients, on all of the issues around dental radiography. As Dr Fennell says: "It has to be user friendly, readable and easily understood. The important thing is to get it right".

The legislation

S.I. No. 125 of 2000

The use of ionising radiation is regulated by the Radiological Protection Act, 1991 (Ionising Radiation) Order, 2000 (Statutory Instrument No. 125 of 2000). This Order applies to all practices that involve a risk of exposure to ionising radiation. Under this Order the RPII has responsibility for licensing and regulating sources of ionising radiation.

SI 478 of 2002

Medical Exposure Radiation Unit

European Communities (Medical Ionising Radiation Protection) Regulations 2002 (SI No. 478 of 2002) is the statutory instrument that regulates patient safety. The HSE has been delegated some responsibilities by the Minister for Health and Children for regulating patient radiation protection practices as per this legislation, in order to protect patients from the harmful effects of exposure to ionising radiation.

Types of licence

Before you acquire radioactive materials or irradiating apparatus, you need a licence from the RPII. If you are in the dental or medical sectors you must appoint an approved Radiation Protection Adviser (RPA) to advise your practice on all aspects of radiation protection. Some of the conditions of licensing include:

- keep records of all radioactive materials and irradiating apparatus;
- keep records of dose monitoring, disposals, incidents, faults, and other relevant information;
- display a copy of the licence in a public place;
- ensure proper labelling of all radioactive materials and irradiating apparatus;
- make sure that all licensed items are subject to routine maintenance in accordance with the manufacturers' instructions, and undergo appropriate quality assurance testing, as recommended by the RPA;
- display a sign warning female patients to declare their known or suspected pregnancy; and,
- ensure that, when licensed equipment or material is sold, the purchaser is aware of their obligation to acquire a licence from the RPII.

This list is not exhaustive. For further information, log on to the RPII's website – www.rpii.ie.

Dr Fernando Minambres, Spain, and Dr Robin Foyle at the recent CED meeting in Santiago de Compostela.

Dr Barney Murphy and Dr Tom Feeney at the recent CED meeting in Santiago de Compostela.

BIOIS presents report on EU mercury strategy

DR TOM FEENEY reviews the latest news from Europe.

Commission impressed by CED's work on the amalgam question

The whole mercury question is currently high on the Commission's agenda and the health and environmental risks associated with mercury have led the EU to develop a comprehensive Community Strategy, adopting it in 2005. Its mandate was to address mercury pollution both in the EU and globally. The following six strategies in particular have been identified as priorities:

- reducing mercury emissions;
- reducing the entry into circulation of mercury in society by cutting supply and demand;
- resolving the long-term fate of mercury surpluses and societal reservoirs (in products still in use or in storage);
- protecting against mercury exposure;
- improving understanding of the mercury problem and its solutions; and,
- supporting and promoting international action on mercury.

There have been significant developments since 2005. BIO Intelligence Service has been commissioned to conduct a study to support the review of the Community Strategy Concerning Mercury for the European Commission (DG Environment). The Commission intends to complete its review by the end of 2010 with proposals for any necessary changes published by the end of the year.

The objectives of this study were:

1. To review the progress made so far in implementing the Community Strategy Concerning Mercury and each of its 20 strategic actions.
2. To identify areas where implementation is lagging behind and suggest potential complementary measures.
3. To propose amendments, as needed, as well as additional actions, taking into account recent studies, scientific progress, best practices and policy initiatives at EU and international levels.

A meeting on the review of the Community Strategy Concerning Mercury took place in Brussels on Friday June 18, 2010, at which the CED was represented. The main purpose of this meeting was to present to and discuss with stakeholders the initial findings of the study by BIO Intelligence Service on the review of the Community Strategy Concerning Mercury. The Strategy contains 20 actions aimed at curtailing the use of mercury. Two of these directly or indirectly refer to the use of amalgam fillings:

- *Reviewing treatment of dental amalgam waste and taking appropriate steps* – the review here concluded that there are still significant compliance gaps, which could be addressed by cost effective measures such as the use of amalgam separators. No policy measure has yet been taken at EU level to address this issue. Additionally, current EU legislation may allow the disposal of dental amalgam waste in landfills under certain conditions.

  The measures proposed to deal with these shortfalls include making the installation of high efficiency amalgam separators obligatory in dental clinics, and amending the acceptance criteria for landfills so as to explicitly exclude disposal of dental amalgam waste.

- *Expert opinions on amalgam* – the screening assessment conducted by SCHER in 2008 on the environmental risks and indirect health effects of mercury in dental amalgam should be complemented, taking into effect information gaps in the original assessment.

The Commission is researching the dental aspects of the mercury strategy very fully and with a relatively open mind. Their officials have spoken to other stakeholders, including individual dental associations, and are sympathetic to the arguments the profession presents. They have also asked sensible questions about the implications of the use of alternative materials.

CED Amalgam Working Group update

Background

The CED's statement on dental amalgam was amended and agreed by the General Meeting in November 2009. The amendment was proposed because the Commission is now considerably less concerned about the health risks of dental amalgam, but focuses on the environmental impact of mercury associated with dentistry. The following section is highlighted as the underpinning focus of the CED's credibility in its work to influence the European Strategy Concerning Mercury:

"The dental profession takes seriously the environmental impact of its members' activities and emphasises that the dental professional has an obligation to work within the legal framework governing mercury-containing products. The CED calls on Member States to ensure the full implementation and enforcement of EU waste laws, and fully supports examination into whether this is happening."

CED Amalgam Working Group survey

The Working Group has now completed the third in the series of surveys that gives additional valuable information on the trends of implementation of the Hazardous Waste Directive. In the most recent survey, some additional information about the trends of the use of amalgam and the way in which it is purchased from suppliers is provided.

Survey details

- The 2010 survey shows a continued trend for increased and significant levels of responsible compliance with the translation of the Hazardous Waste Directive.
- The majority of countries (29 out of 30) have transposed the EU Hazardous Waste Directive into national law.
- Most of the countries that have the Directive as national law actively enforce this law – only two out of 29 do not.
- Amalgam separators are required by law in 18 out of 28 countries. In most cases (18 out of 21), this applies to all units/premises and not just newly installed/equipped premises.
- In 14 countries, over 99% of practices have separators installed. A further five countries reported 80-99% of practices having them installed.
- Only two countries have no regulations restricting collection of amalgam to registered/licensed carriers.
- Dentists are liable in 18 countries if national regulations are not met. The licensed carrier is liable in 12, and local/national authorities in four countries.
- All amalgam separator manufacturers/distributors offer recycling in 15 countries, and some do in a further four countries.
- Some 23 countries reported that the use of amalgam in their country is reducing. A further four reported that its use is restricted by legislation.
- The preparation and restoration of teeth by amalgam is taught in dental schools in 22 out of 29 countries.
- The use of encapsulated amalgam is required by law in 12 countries, and a further four countries only have capsules available.

The Commission's representatives have expressed their gratitude for making this information available and also for the work carried out. In relation to the EU Strategy Concerning Mercury, the Commission has referred to the tremendous lobby to ban mercury from remaining uses, in particular dental amalgam, which, following the elimination of mercury in the chlor-alkali industry, has risen to the top of the list in volume of use.

Review of Directive 2005/36/EC

At the recent meeting in Santiago de Compostela, CED members adopted a resolution on the anticipated review of Directive 2006/35/EC (Directive on Recognition of Professional Qualifications), supporting the principles of mutual recognition and free movement of dentists within the EU. They identified the issues of most importance to European dentists, which should be addressed in the course of the review. They stressed the need to update the minimum study requirements for dental practitioners, including by changing the annex of study subjects and by specifying that dental training should consist of at least 5,500 hours of training.

CED members called for the unity of dental training to be maintained and again encouraged politicians and academics to exclude dentistry from the two-tier diploma cycle in line with the Bologna process. Failure to do so would jeopardise high standards of dental care and the safety of patients across Europe.

The CED asked for a clarification of language requirements for dentists wishing to practise in another country. CED members stressed that dentists should speak the host Member State's language at a level that would allow them to take accurate and comprehensive medical histories from patients and explain to them any proposed dental treatment plans.

The CED supported the use of electronic communications and other new technologies in citizens' contacts with competent authorities, as well as increasing co-operation between competent authorities, including by extending the use of the Internal Market Information (IMI) System. However, doubts were raised about the benefit of introducing a mandatory professional card for dentists.

Quality of healthcare: policy actions at EU level

In response to the European Commission's reflection paper on possible future action on quality of healthcare at EU level, CED members approved a common position on this issue.

Pointing to different definitions of quality of care in the EU, CED members agreed that as a first objective a common understanding of quality should be reached. They supported close co-operation between healthcare professionals, patients, decision makers and

researchers on quality assurance measures and underlined problems with comparability of relevant data.

CED members concluded that future policy actions on quality of healthcare should not encroach on prerogatives of Member States and supported further development of existing co-operation, including through exchange of information and best practices.

Tooth whitening – draft directive fails to progress

A written voting procedure took place at a meeting of the Standing Committee on Cosmetic Products in early June on the new Draft Directive on Tooth Whitening Products. Five countries voted against the draft directive – Italy, Spain, Germany, France and Lithuania. There was no qualified majority for or against the draft directive. DG Sanco is now considering the next step.

QUIZ

Submitted by Dr David Finucane.

FIGURE 1: Tooth 74.

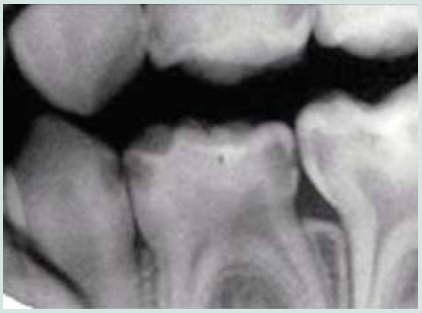

FIGURE 2: Radiograph of similarly affected mandibular first primary molar.

1. What is the clinical significance of the carious lesion in the mandibular left first primary molar (**tooth 74**)?
2. What further information is required to make a diagnosis?
3. How should this tooth be restored?
4. How successful is the treatment likely to be?

Answers on page 200

Changes in funding for dental care across the EU

Austria – Discussions about a new Dental Treatment System within the Social Insurance System. Fees have been raised by 1.99%.

Germany – German Dental Association requesting restructuring of private scale of dental fees. Neither fees nor specification of services have been changed since 1988.

Hungary – Government expenditure on dental care continuously reduced.

Ireland – DTBS limited to examination; DTSS limited to examination and emergency treatment. Dentists to challenge proposals in court.

Latvia – 30% cut in funding of healthcare.

Poland – Expenditure of National Health Fund lowered in 2010.

Malta – All regional dental health clinics closed. Free dental treatment only available at the main hospital.

Slovakia – New price lists by insurance companies reduce fees by 12.9%.

Switzerland – Reform for tariffs for dental services in deadlock.

UK – In 2010, NHS pays increase for salaried dentists of 1%, and an increase in contract values for GDPs of 0.9%.

Spain – Dental surgeries closing due to credit issues.

PEER-REVIEWED

Survey of the provision of crowns by dentists in Ireland

Précis

This survey shows that there is a high use of aesthetic crowns and new materials by Irish dentists, but there is scope for improvement in areas of impression technique, shade taking and laboratory communication.

Abstract

Statement of the problem: The literature is limited on the detailed description of the practice of Irish general dentists in the provision of crowns.

Purpose of the study: To review the provision of crowns by dentists in Ireland and identify opportunities for improving current clinical practices.

Materials and methods: A questionnaire was posted to 500 general dentists selected randomly from the Irish Dental Register and 150 responded. Twenty-three laboratories used by these dentists were subsequently surveyed.

Results: The Vita Shade Guide was the most commonly used shade guide. Crowns were mainly fabricated using porcelain bonded to metal (51%) followed by all-ceramic (42%) and gold (5%). Plastic Solo trays were the preferred tray for impressions and the laboratory prescription form was the primary means of dentist–technician communication. Dentists and technicians have different preferences for impression trays, impression materials and bite registration, while a significant percentage of dentists (18%) admitted to not disinfecting impressions. Resin or resin-based cements are the preferred means of crown cementation.

Conclusions: This study suggests that the accuracy of restorations could be improved by: adopting a multi-technique approach to shade taking; replacing Solo trays with metal or custom trays for impression-taking; upgrading of the putty-wash technique by using a custom tray with a 2mm spacer and a heavy-bodied/light-bodied silicone; and, using a two-cord retraction technique, perhaps in combination with electrosurgery or soft tissue laser, to improve marginal accuracy where indicated.

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Introduction

The general dental practitioner has an increasingly broad range of choice when it comes to the provision of crowns, as recent years have seen developments in materials, technology and clinical techniques.[1] These developments have been accompanied by increasing patient expectations for more aesthetically pleasing prostheses and restorations, particularly in the anterior region.[2] All of these place greater demands on the dentist and in turn necessitate higher levels of teamwork with specialists and the laboratory technician. The demand for aesthetics and advances in materials have greatly increased the range of tooth-like crowns. Each type of crown may have specific requirements in terms of tooth preparation design, treatment of the fit surface, luting technique and shade taking, according to the manufacturer's specifications. As a result, the aesthetic crown places a higher burden on the dentist to learn new techniques and often requires the use of additional specialised materials and equipment.

The literature is limited on the detailed description of the practice of general dentists regarding the provision of crowns, particularly given the recent availability of all-

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ceramic materials. Previous studies[3,4] have shown communication from dentists to the laboratory to be poor.

The purpose of this study is to consider the effect of increased demand for aesthetic restorations on prescription patterns, shade taking, use of new materials and communication with laboratories. The objectives are to collect data on: current clinical practices; how dentists and laboratories communicate; differences in perception between the two groups; and, how the situation in Ireland compares with other countries.

Materials and methods

In April 2008 a questionnaire (**Appendix A**) was posted to 500 general dentists chosen at random from the Irish Dental Register and 150 responded. Twenty-three laboratories used by these dentists were subsequently surveyed. The Irish Dental Council provided a CD-ROM containing the list of all dentists registered to practice dentistry in Ireland as of March 18, 2008. The list contained a total of 2,523 dentists and this was reduced to 1,969 by excluding those with additional registered qualifications. The list was further reduced to 1,873 by excluding those dentists with addresses outside Ireland. A random number generator was used to select 500 dentists at random from this list. Each of the 500 dentists was sent a cover letter, the questionnaire and a stamped addressed envelope. The letter invited each dentist to return the questionnaire in the stamped addressed envelope and, as an incentive, offered the dentist the option of receiving a summary of the results of the survey.

The questionnaire sent to dentists asked for the details of the primary laboratory used for crowns. A total of 52 laboratories were mentioned in the questionnaires returned by the dentists. Contact by telephone was attempted for all those laboratories where telephone numbers were provided or where the laboratory telephone number could be obtained by research. The laboratories mentioned most by dentists were prioritised and greatest effort was made to obtain responses from these laboratories. A covering letter was created to invite each laboratory to return the questionnaire in a stamped addressed envelope and offered the laboratory the option of receiving a summary of the results of the survey.

Each laboratory was contacted by telephone and offered the option of completing the questionnaire in **Appendix B** on the telephone, by email, by post or by completing an online version of the questionnaire created using ViewletQuiz,[3] version 3.0.2, Qarbon (www.qarbon.com).

Questionnaires

The dentist questionnaire requested data concerning the current practice of dentists in respect of crowns, requested demographic data, and contained questions on factors affecting crown selection, use of different crown types and cements, rating of primary crown laboratory, use of tray and impression materials, shade, retraction techniques, decontamination of impressions and communications with laboratories.

The laboratory questionnaire contained questions on communications with dentists, rating of information and impressions received from dentists, decontamination of impressions, information missing on instructions from dentists, and rating of various aspects of their crown work.

Results

The total response rate from dentists was 30% (n=150). This included 30 dentists who did not provide crowns, comprising the following groups: dentists no longer at the address (n=2); dentists not providing crowns (n=2); retired dentists (n=8); and, dentists employed within the health service and not providing crowns (n=17). Of the responses, 28% (n=33) were from female dentists and 72% (n=86) from male dentists, while one dentist did not specify gender.

The age profile of the dentists returning a questionnaire is shown in **Figure 1**. The response was dominated by 35% (n=42) of dentists in the 31 to 40 age group and 30% (n=36) of dentists in the 41 to 50 age group.

The questionnaire posted to dentists asked them to provide details of the laboratory that they use as their primary source of crowns. A total of 85% (n=102) of dentists supplied details of their primary crown laboratory. A total of 52 laboratories were mentioned by dentists. Questionnaires were completed by 44% (n=23) of laboratories, including the 12 most mentioned laboratories.

A total of 96% (n=115) of respondents provided details of the type of shade-taking method they used. The classic Vita Shade Guide is the shade guide most commonly used, with 87% (n=100) of respondents mentioning it (**Figure 2**). The use of the VITA 3D Shade Guide lags

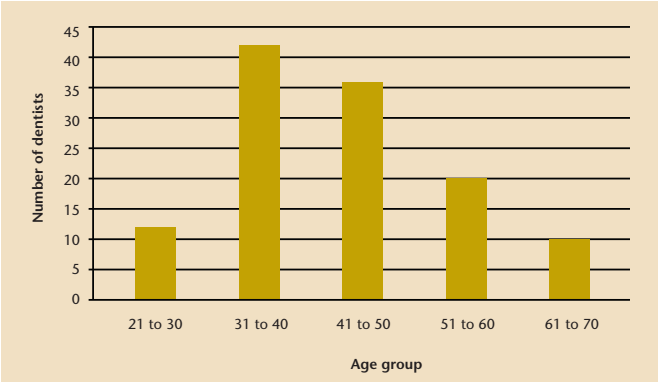

FIGURE 1: Dentist age profile.

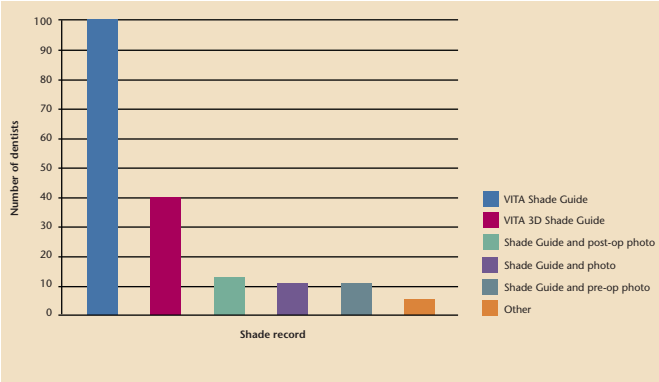

FIGURE 2: Dentist shade recording.

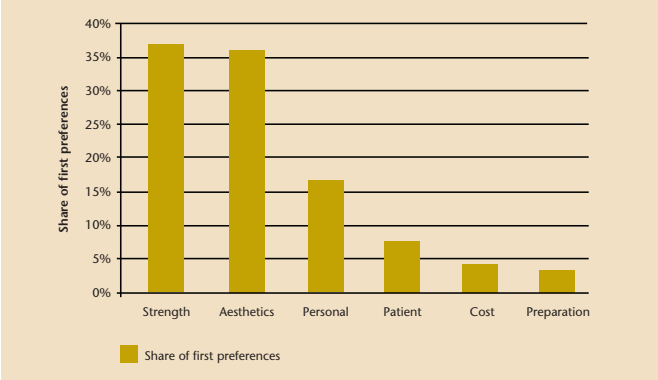

FIGURE 3: Ranking of crown selection factors.

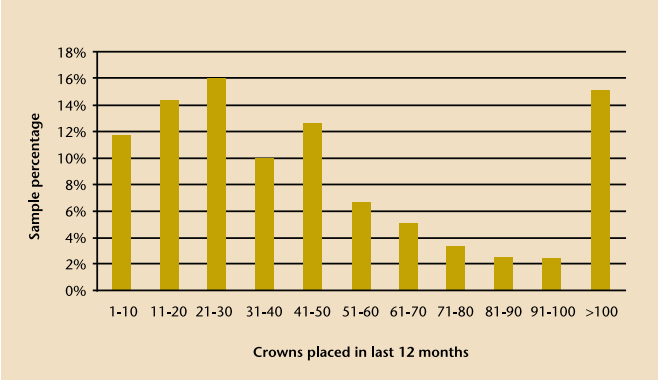

FIGURE 4: Numbers of crowns placed.

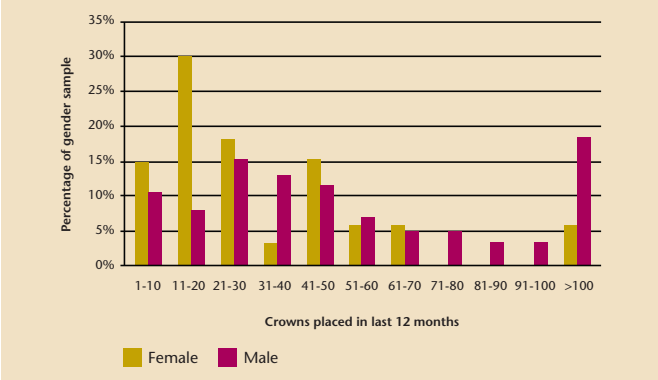

FIGURE 5: Placement of crowns by gender.

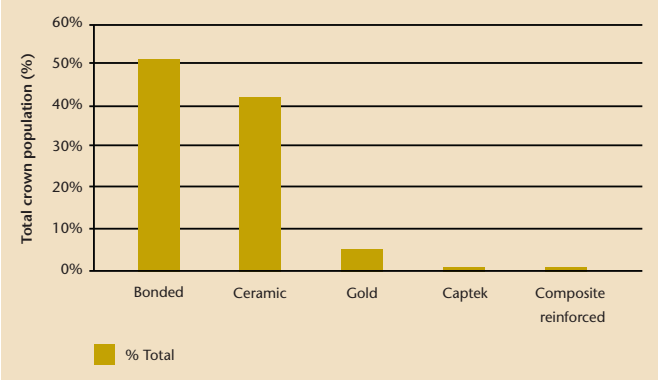

FIGURE 6: Predominance of aesthetic crowns.

behind at just 34% (n=39). Although dentists with higher placement of crowns (41+ crowns) are the largest user group of the VITA 3D shade guide with 49% (n=27) penetration, there is no discernible pattern of usage by number of crowns placed, age or gender. Laboratories were asked what shade guide best served their purpose and 22 provided a reply, with 77% (n=17) choosing the Vita Shade Guide and 18% (n=4) choosing the Vita 3D. The study indicates that the Vita Classic shade is the most predominant shade guide in use by both dentists and laboratories.

A total of 96% (n=115) of respondents ranked six criteria in order of their influence on the selection of crown types on a scale of 1 to 6. The ranking was analysed in terms of first preference by counting the number of times that a factor was ranked as 1 by a dentist. The results are summarised in **Figure 3**.

Dentists were asked to provide details on the number of crowns that they placed in the last 12 months, how this was distributed across the different types of crowns, and what cements they used in each case. A total of 98% (n=118) of dentists provided a reply on crowns placed. The data on crowns placed were also accumulated for each dentist to determine the range of total numbers of crowns placed by dentists. A histogram of the results is plotted in **Figure 4**, which shows that 52% place 40 crowns or fewer per annum. The distribution of number of crowns placed by male and female dentists is shown in **Figure 5**.

Bonded crowns (51%) continue to be the most frequently placed crowns, though the more recent ceramic crowns (42%) are also very popular by a long margin over gold, Captek™ and composite reinforced crowns (**Figure 6**).

A total of 88% (n=105) of dentists provided information on the cements used with crowns. Resin cements were used for a broader range of crowns than any other cement and appear to be the cement of choice for most crowns, as shown in **Table 1**, although no dentist mentioned their use with gold crowns. Glass ionomer and zinc phosphate cements continue to be used by a sizeable number of dentists. A total of 50% (n=53) of dentists use one cement alone; 10 of these specified just one crown type but the remaining 43 used the same cement for more than one type of crown. With the exception of white gold, resin cements were the most frequently used cements for all crowns.

A total of 98% (n=118) of dentists replied to the question asking whether gingival retraction was used and what techniques were used, with 95% (n=112) of the replies stating that gingival retraction was used. **Figure 7** shows the numbers of dentists using the six retraction methods mentioned in the survey. Copper rings were also offered as an option but no dentist indicated that they used this technique.

The dentists' use of trays (**Figure 8**) is at odds with the laboratories' preferred impression tray. Laboratories were asked which tray they

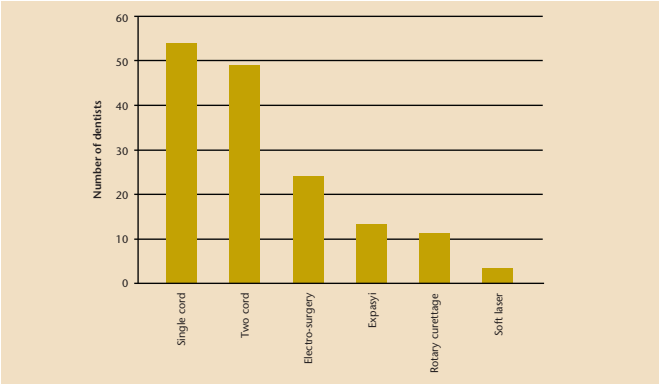

FIGURE 7: Use of retraction techniques.

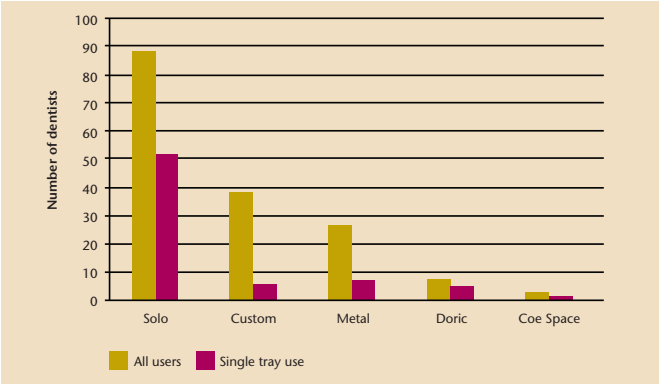

FIGURE 8: Dentists' use of trays.

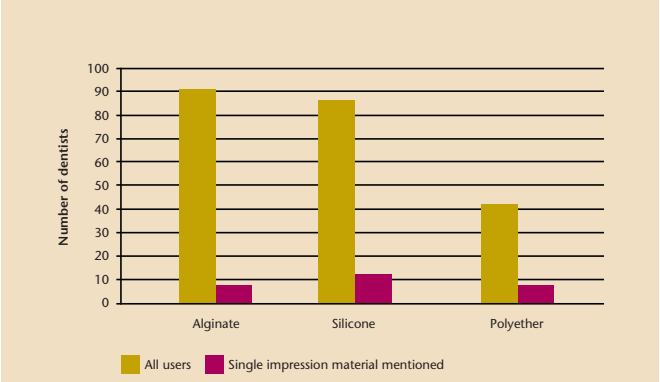

FIGURE 9: Dentists' use of impression trays.

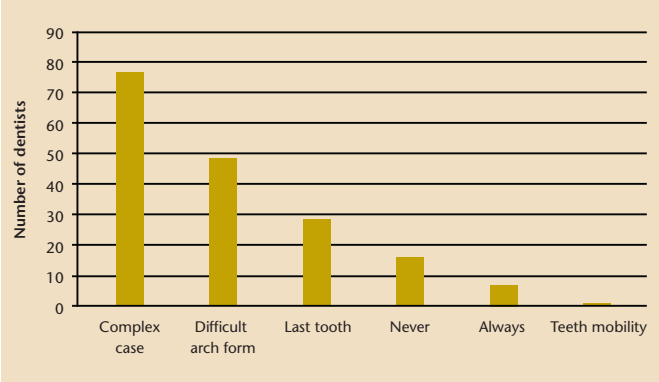

FIGURE 10: Use of custom trays.

Table 1: Dentists' use of different cement types by crown type.

	Total response	Glass ionomer	Resin	Resin reinforced glass ionomer	Zinc phosphate	Zinc polycarboxylate
Yellow gold	56	7	27	6	13	6
White gold	7	4		1	1	1
Precious	79	16	34	15	13	9
Non-precious	32	4	13	8	8	1
Captek	6	2	2		1	
Inceram	15	1	12			2
Zirconia	13	2	12			
Lava	17	1	14	2		
Procera	56	9	40	8	3	3
Composite	4		4			
Pressed	21	2	16	3	1	1
Other	5		4	1		

preferred in order to achieve optimal crown accuracy. All 23 laboratories answered this question. A total of 57% (n=13) preferred the metal tray, 35% (n=8) the custom tray, 4% (n=1) the Doric Tray, and just 4% (n=1) chose the Plastic Solo tray. **Figure 9** summarises the dentists' replies to the question about their use of impression materials. Reversible hydrocolloid was offered as an impression material but no dentist indicated that it was used. The question regarding alginate was in relation to its use to record opposing arches.

A total of 93% (n=112) of respondents answered the question asking about their use of custom trays. The replies are summarised in **Figure 10**; 14% (n=16) indicated that they never use custom trays. Laboratories were asked how many dentists used custom trays. Twenty-two laboratories answered and reported that the number of dentists providing custom trays was 8% (nine said 1% and two said nil).

Laboratories were asked to identify which combination of tray and impression material caused them the most difficulty. A total of 91%

Table 2: Trays and impression materials causing most difficulty for laboratories.	
Solo and two-stage impression material	6
Triple trays and two-stage impression material	4
Solo and silicone	2
Impregum and metal	2
Plastic and two-stage	1
Heavy body putty	1
Plastic Solo and monophase impression material	1
Custom tray with two-stage	1
Dual arch and Solo tray	1
Plastic trays	1
Impression compound on an opposing arch	1

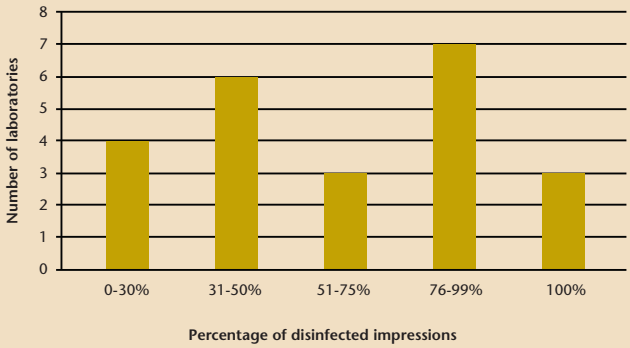

FIGURE 11: Laboratories' perception of disinfected impressions.

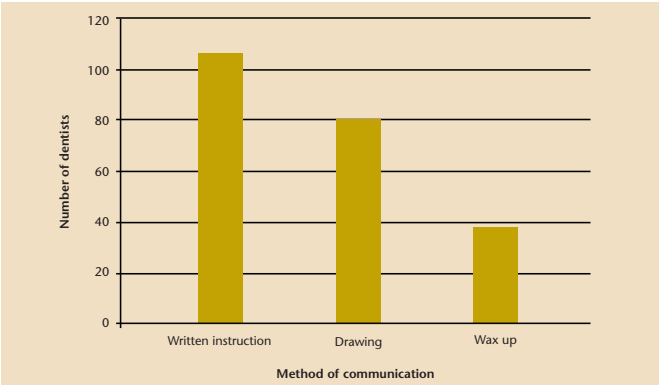

FIGURE 12: How dentists communicate crown form.

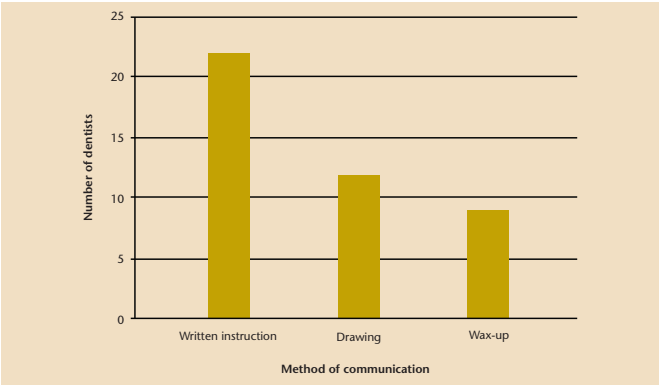

FIGURE 13: Laboratory receipt of information about crown shape and size.

(n=21) responded. **Table 2** lists the items causing them most difficulty plus the number of laboratories mentioning each item.

A total of 98% (n=118) of dentists answered the question on decontamination. Of these, 18% (n=21) replied that they do not decontaminate. The laboratories were asked to indicate what percentage of impressions received from dentists they considered to be decontaminated. All 23 laboratories replied and the results are shown in **Figure 11**. All the laboratories confirmed that they decontaminate the impressions before models are poured.

Dentists were asked to specify which of three methods they used to record the occlusion and identify those that applied. A total of 98% (n=118) answered the question and the results indicated that the wax bite and occlusal bite registration paste were the most common methods at 65% (n=77) and 64% (n=75), respectively. The facebow method usage was much lower at 21% (n=25).

The laboratories were also asked to rate the general bite communication received for each method (on a scale of 1-5, 5 being excellent). Twenty-two laboratories responded to the question and the average score for each of the occlusal recording systems applied was: facebow 3.8; bite paste 3.6; and, wax bite 3.1.

A total of 91% (n=107) of dentists used written instructions, 68% (n=80) used drawings and 32% (n=38) used wax-up to communicate with laboratories (**Figure 12**).

Table 3: Laboratory forms with missing information.	
Lab dockets with insufficient information	28%
Lab dockets that require contact with dentist for additional information	25%
Lab dockets with insufficient information on sites to be covered with porcelain	43%
Lab dockets specifying the percentage of gold (for gold crowns)	36%

Laboratories were asked to indicate the percentage of dentists using each of the three methods for communicating crown shape and size. Twenty-two laboratories responded and all said that written instructions were used, 55% (n=12) said drawings were provided and 41% (n=9) said that wax-ups were used (**Figure 13**). Laboratories were asked to give the percentage of crown laboratory dockets that were missing information in four specific cases and the results are shown in **Table 3**.

The survey indicates gender difference in several aspects of crown restorations. Female dentists reported greater use of the Plastic Solo tray, with 88% (n=28) indicating use of this type of tray compared to 73% (n=58) of their male counterparts. This was found to be similar to other countries.[9,10,11,12] A gender difference was observed in the survey results for decontamination with 88% (n=29) of female dentists decontaminating compared to just 81% (n= 68) of male dentists. Female dentists indicated greater use of the wax bite (73%, n=24)

than male dentists (62%, n=53). A greater proportion of female dentists (48%, n=16) used the two-cord technique than male dentists (38%, n=32). Male dentists reported higher use of electrosurgery (23%, n=19) and Expasyl (13%, n=11) than female dentists (15%, n=5 and 6%, n=2, respectively). The small sample size of female dentists in the completed questionnaires would caution against making inferences about the total population of dentists.

Discussion

The effective return rate, comprising dentists in general practice in Ireland providing crowns, was 24% (n=120). The response rate of 150 for a total population size of 1,873 represents a sampling fraction of 8%, giving a margin of error of 7.7% for a confidence level of 95%, assuming a response distribution of 50%. The response rate of the survey (30%) may have been influenced by the length of the questionnaire[13,14,15] (19 detailed questions and up to 102 separate items of data) and the lack of follow-up reminder[16,17] (telephone call or letter). A higher response rate (44%) was achieved from laboratories, which may have been influenced by the follow-up telephone call, greater choice in completing the questionnaire (mail back the questionnaire, complete online or complete the questionnaire by means of telephone interview), and less complex questionnaire (18 questions and up to 46 items of data). There is the possibility that the limited response rate will limit the conclusions drawn from the data.

The literature often specifies clinical considerations (such as strength), aesthetics and cost as being the primary factors affecting the choice of crowns.[5] This survey suggests that there are other significant factors that influence the selection of type of crown. Whereas clinical considerations and aesthetics remain significant factors, dentist preference and customer preference are indicated as having higher significance than cost. This finding is of particular importance, as patient involvement and agreement in treatment planning has become a necessity to meet the increase in medico-legal demands, especially where anterior teeth are concerned.

The most popular cement for dentists in the survey was RelyX Unicem (3M), which is encouraging as several studies have found that resin cements achieve the best bond strength and marginal integrity provided they are used with dental adhesives for the range of cements in current use for crowns.[6,7,8]

The Irish Dental Council has issued a code of practice relating to control of infection in dentistry (www.dentalcouncil.ie/g_crossinfection.php), which requires dentists to disinfect all impressions before sending them to the laboratory and to disinfect all prostheses prior to placing them in a patient's mouth. Despite this requirement, 18% of dentists indicated that they do not decontaminate impressions. This is consistent with a survey[4] of dental laboratories used by Irish dentists where the proportion of impressions not decontaminated by dentists was 8%. This estimate was based on the decontamination of impressions as perceived by technicians and the author of the study postulated that the level was likely to be in excess of 10%. Decontamination of impressions by dentists is a serious issue for laboratories and all expressed concern that they were provided with insufficient information on the contamination state of the impressions. Laboratories did not know with absolute certainty which of the impressions from dentists were decontaminated or which ones were potentially contaminated with an infectious disease. In the absence of written confirmation, laboratories can only make an assessment of decontamination by a visible inspection of the impression and though no laboratory reported receiving heavily contaminated impressions, the majority report receiving some impressions with minimal contamination. It is disappointing that decontamination of impressions is not universally performed given the evidence in the literature about the potential transmission of infection to the laboratory.[9,10,11]

The survey indicates that there are practices in common use by dentists that cause difficulty for laboratories when they attempt to fabricate crowns based on the impressions, occlusal records and information supplied by dentists. The survey indicates that plastic trays are the tray of choice for most dentists, with many using the Plastic Solo tray for much of their crown impression work. One study[12] showed that these trays lead to inaccuracies when used with siloxanes. This use of various types of tray is similar to other countries,[18,19,20,21] although a number of European countries predominantly use metal trays.[17] A number of dentists also used dual-arch trays despite their potential inaccuracies, especially when used with heavy-bodied silicone material.[23,24] The laboratories expressed a preference for monophase impression materials used in conjunction with metal or custom trays. This may be linked to the increased possibility of incurring inaccuracies by using the two-stage technique incorrectly.[25] Polyvinylsiloxane material is the most accurate material but requires close attention to technique.[26,27,28,29] The gold standard method is the dual-phase technique, whereby a custom tray containing a heavy-bodied silicone is used in the tray with a low-viscosity syringed intra-orally around the preparation.

A similar situation was reported for occlusal records, with dentists indicating that the wax-bite was the most common means by which they communicate occlusion to the laboratory and that the facebow was used infrequently. Laboratories considered the wax-bites received to be the least accurate of the occlusal records due to the inherent accuracy characteristics of the method, but also largely because dentists used too much wax.[30,31,32] The excessive wax used caused diminished accuracy. Laboratories recognised the benefits of using a facebow, compared to no facebow, but the majority expressed the view that receiving greater numbers of facebows from dentists would not improve matters because facebows were not recorded adequately. Newer, simplified facebows such as the Kois facebow may provide a solution to the difficulty that seems to be commonplace with use of a facebow in general practice.[33] The facebow allows the greatest accuracy to be achieved when mounting casts on an articulator and enables the axis of rotation of the articulator to replicate the transverse horizontal axis of the patient. Mounted diagnostic models aid occlusal analysis and treatment planning by assisting the dentist in identifying factors that are causing a functional problem and in visualising the changes required to achieve a desired aesthetic result. Observation of accurately mounted models enables

the dentist to evaluate several occlusal factors, which can be difficult to see *in vivo*, such as the effect of anterior guidance on posterior disclusion, premature contacts, and signs of mobility and wear. Use of facebow and mounted diagnostic models are recommended where extensive restoration is planned and in the case of functional problems such as tooth wear, mobility, tender facial muscles or temporomandibular joint disorders.

During the telephone interviews with the laboratories many observed that crown margins were often poorly defined. The extent to which single cord gingival retraction is used may have a bearing on this since it may be less effective than the other retraction methods available. The requirement for accuracy is that a minimum of 0.2mm of polyvinylsiloxane is necessary to minimise distortion.[34] The two-cord technique has been reported as providing greater accuracy.[35]

The primary medium for communications between the dentist and the laboratory continues to be the laboratory docket, often supplemented by drawings/diagrams and less often by photographs. However, information is often missing from these dockets and the consequences of the missing data is a loss of time for the laboratory and perhaps a suboptimal crown as laboratories may not seek or receive the information that they require.[36] Earlier studies[3,4] have shown that communication between the dentist and laboratory was poor and it appears from this study that this continues to be the case.

Conclusion

The provision of crowns in Ireland is similar to the situation in other countries:

- the quality of impressions is problematic for fabrication of quality crowns;
- plastic trays are the preferred means of recording impressions by dentists;
- elastomeric impression materials are most commonly used;
- a significant percentage of dentists (18%) do not disinfect impressions;
- communication between dentists and laboratories is primarily through the laboratory prescription form, with a large proportion of these (25%) missing information;
- the specification of type of crown or alloy is often missing; and,
- the communication of the occlusal relationship is inadequate.

Based on the areas of concern identified in the survey, the following suggestions can be proposed based on currently available literature to improve the provision of crowns:

- Improve restoration accuracy through:
  - adoption of a multi-technique approach to shade taking;
  - replacement of Plastic Solo trays with metal, rigid plastic trays or custom trays for impression taking;
  - refinement of the dual stage putty-wash technique by using a custom tray with a 2mm spacer and a heavy-bodied/light-bodied silicone;
  - increased use of a facebow;
  - limiting the amount of bite registration paste to the inter-occlusal space and single-wafer wax in occlusal records. Not using any inter-occlusal recording medium unless it is indicated. Where records are indicated, the choice and clinical manipulation should be understood; and,
  - use of adequate retraction through a two-cord or other evidence-based technique.
- All items such as impressions, occlusal records and prostheses, which have been in a patient's mouth, should be disinfected before being sent to the laboratory. The laboratory should also be informed so that a duplicate disinfection process is avoided.[4,33,34]
- Indicate the known infectious state of the patient. Where the patient is known to have an infectious disease, state the nature of the condition on the laboratory prescription form and follow COSHH guidelines. To maintain patient confidentiality it may be appropriate to consider using a unique patient ID rather than a name on the form. In all other cases state that the patient is not known to have an infectious disease.
- Emphasise the importance of good communication skills with the dental technician.[3,4,35]

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PEER-REVIEWED

Fresh-frozen bone: case series of a new grafting material for sinus lift and immediate implants

Précis

Use of fresh-frozen bone permits effective bone-adding surgery and immediate implant insertion under local anaesthesia, decreasing both chair time and patient discomfort.

Abstract

Statement of the problem: Although autologous bone is considered to be the gold standard grafting material, it needs to be harvested from patients, a process that can be off-putting and can lead to donor site morbidity. For this reason, homologous fresh-frozen bone (FFB) was used in the current study as an alternative graft material.
Purpose of the study: The aim of this study was to evaluate the effectiveness of FFB as a grafting material in complex maxillary sinus lift with immediate implant insertion.
Methods: FFB was obtained from the Veneto Tissue Bank and preserved at -80°C. Twenty-one patients were surgically treated with FFB block grafts in 26 maxillary sinus rehabilitations, with 47 immediate implant insertions, with a reopening phase after six months. All patients underwent orthopanoramic X-rays and CT scans before, immediately after and four months (X-ray only) post surgery. Bone biopsies were performed in order to evaluate the volume and density of the bone grafts, which all showed optimal adherence without complications.
Results: Four months post surgery, 64% of grafts showed no evidence of bone resorption or resizing. In all other cases resorption was slight. All implants were clinically osseointegrated, with only one implant failure during the provisional prosthetic loading stage (97.8% success rate). Histological studies confirmed these results, showing the presence of new bone and sparse osteoclastic activity four months post implantation, with 80% mature bone material observed after 12 months.
Conclusions: Use of FFB permits effective bone-adding surgery and immediate implant insertion under local anaesthesia, decreasing both chair time and patient discomfort.

Key words: Fresh-frozen bone; sinus lift; bone block grafts; jaw atrophy; implants.

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Introduction

An adequate alveolar bone volume is required for successful functional–aesthetic prosthetic implant rehabilitation. Unfortunately, the placement of guided dental implants may be impossible in the case of alveolar bone resorption. During the last ten years there has been an increased request for prosthetic implant rehabilitation in patients with alveolar ridge atrophy. Implant insertion can be performed by surgical techniques such as osteotome sinus floor elevation (OSFE)[1] and splitting crest in minor cases of atrophy,[2] but otherwise it is first necessary to increase bone volume. This may be achieved by sinus lifting,[3] bone-added osteotome sinus floor elevation technique (BAOSFE),[4] future site technique, guided bone regeneration (GBR)[5] or osteodistraction,[6] but the most common technique used for three-dimensional ridge construction is the use of bone grafts.

TABLE 1: Qualities of reconstructive grafting materials.

Material	Osteogenesis	Osteoinduction	Osteoconduction	Structural strength
Autologous bone	++ (medullary) + (cortical)	+ +	+ + + + (medullary) + (cortical)	- (medullary) + + (cortical)
DFDBA	-	+ / - ?	+	+
FDBA	-	+ / - ?	+	-
Xenograft material	-	-	+	-
Alloplastic material	-	-	+	-
BMP rh	-	+	-	-

DFDBA: demineralised freeze-dried bone allograft; FDBA: freeze-dried bone allograft; BMP rh: bone morphogenetic protein.

Although autologous bone is considered to be the best grafting material due to its particular physiological properties (e.g., osteoinduction, osteoconduction, osteogenesis, biocompatibility), this type of bone harvesting involves both pain and possible complications.[7] For example, bone harvesting in the hip may cause oedema as well as pain for four to five days at the donor site. Additional adverse effects include the necessity to use crutches for two weeks and reduced mobility for up to a month. Surgical complications such as lateral thigh anaesthesia, lesion of the inguinal ligament and abnormal iliac fractures have also been shown to occur in some cases.[8,9]

To prevent the possibility of donor site morbidity due to the use of autologous bone, other grafting materials available on the market may be chosen. These include homologous bone (e.g., demineralised freeze-dried bone allograft [DFDBA],[10] freeze-dried bone allograft [FDBA]),[11] heterologous bone (e.g., bovine, equine or porcine derivatives),[12] and alloplastic materials (e.g., ceramic, bio-glass, hydroxy-apatite and tricalcic sulphate).[13] While none of these materials are osteoinductive, they are all osteoconductive and may therefore be considered as alternatives to autologous bone (**Table 1**). It should also be noted that although DFDBA and FDBA in bone-block shape are very good osteoconductive materials, there is an ongoing scientific dispute regarding the adequate presence of osteoinducing bone morphogenetic protein (BMP), possibly due either to the processing technique used or donor age.[10,14]

In the present study, homologous fresh-frozen bone (FFB) obtained from the Veneto Tissue Bank and stored at -80˚C was used as an alternative graft material. This material has similar anatomical and physiological properties to autologous bone, without the associated limitations involved in harvesting, such as an inadequate amount of recoverable bone and donor site morbidity. FFB is a mineralised and non-irradiated homologous bone. The limited processing (i.e., disinfection and freezing only) guarantees its osteoconductive and osteoinductive qualities.[15] Using new diagnostic techniques such as polymerase chain reaction (PCR), it is possible to ensure that the material has a decreased risk of viral transmission from the grafting material to the patient (less than one per million),[16] and will not cause an immunogenic reaction in healthy patients.

In 1973, Urist and Iwata[17] demonstrated the preservation of BMP in frozen bone. The proteins remain unaltered due to the denaturation of their lithic enzymes at low temperature. Furthermore, bone preservation at -80°C has the advantage of denaturing the superficial proteinic chains of seric antigens of histocompatibility (ABO blood type), which would normally activate an immunogenic reaction. FFB is thus accepted by the body as it is not recognised as a foreign body by the host. The freezing process also reduces the infective power of certain viral agents such as human immunodeficiency virus (HIV) and hepatitis C virus (HCV), and preserves the mineral components of the osseous matrix, thereby ensuring high structural strength of the bone. Additionally, the disinfection procedure of at least 72 hours at -4°C in polychemotherapeutic solution (i.e., vancomycine, polymyxine, glazidine and lincomycine), lowers the risk of bacterial infection without impairing the presence of BMP.

The aim of this work was to demonstrate the clinical and histological effectiveness, the osteoinductive properties and the safety of homologous FFB.

Materials and methods

Fresh-frozen bone safety protocols

The FFB was obtained from the Veneto Tissue Bank in Treviso, Italy. The requirements for homologous bone donors are more stringent with respect to those of organ donors. The presence of risk factors such as contagious disease, neoplasm, rheumatic and/or degenerative disease and sepsis necessarily disqualifies the donor. In order to detect infectious agents, the following tests are performed on donor blood samples taken within eight hours of death: anti-HIV-I/II antibody (Ab); anti-HCV Ab; hepatitis B virus (HBV) surface antigen (HbsAg); anti-HBV core (HBc) Ab; anti-HBV surface (HBs) Ab; anti-human T-lymphotropic virus (HTLV)-I/II Ab; anti-Ag Treponemal Ab; anti-cytomegalovirus (CMV) immunoglobulin (Ig)G Ab; anti-CMV IgM Ab; anti-Toxoplasma IgG Ab; and, anti-Toxoplasma IgM Ab. A haemoculture is also performed to detect aerobic and anaerobic bacteria, mycobacteria and mycotic agents. As a further safety precaution, a serological follow-up is conducted using PCR techniques to detect any viral RNA or DNA of HIV, HCV and HBV. This method reduces the "diagnostic window period" of seven days for HIV, HCV and HBV. At the base of these time margins, the possibility of viraemia at time of donation may be extrapolated. These values are theoretical, since they are calculated

FIGURE 1: Photograph of a sample of tricortical fresh-frozen bone.

based on the statistical incidence of the same infectious agents in the reference population; in reality the processing and preservation techniques notably diminish the infective power of viral agents to such an extent that several studies confirm the possibility of infection from a homologous graft to be 1 in 1,000,000.[16] The use of this material is well known in Italy, particularly in orthopaedic surgery, so no approval for its use was required by the local ethics committee. Written informed consent was obtained from patients prior to the procedure. Ethical approval has been obtained for studies of similar design from our Department (i.e., Dept of Maxillofacial Surgery) at the Civil Hospital Castelfranco using FFB.[18,19] The tissue bank has a quality management system for the harvesting, processing, preservation, validation and distribution of human tissues for clinical use. In May 2003, the tissue bank obtained the following certification: ISO 9001:2000 UNI EN ISO 9001:2000 IQ NET IT/25398. The tissue bank conforms to the national tissue guidelines and has been accredited (by inspection) by the national transplant centre.

Upon completion of all safety tests, eventual tendinous or periostic residuals are removed and the bone is then disinfected for at least 72 hours at -4°C in an antibiotic solution of vancomycine, polymyxine, glazidine and lincomycine. With FFB there is no lipid oxidation since homologous bone is not radiated. The sample is then subdivided into cortico-medullary blocks, packed in double sterile casing and frozen at -80°C. Bone, unlike organs, may be preserved at such temperatures for up to five years, with a shelf life of six days after unfreezing (**Figure 1**).

Surgical protocol: reconstruction phase

Between November 2003 and September 2005, FFB bone block grafts were used to perform 26 maxillary sinus rehabilitations (with 47 immediate implant insertions) on 21 patients (13 females and eight males between 39 and 71 years of age) who had not accepted autologous bone harvesting. Cortico-medullary inlay block grafts were performed in 13 of the cases for isolated vertical defects with irregular prosthetic space.

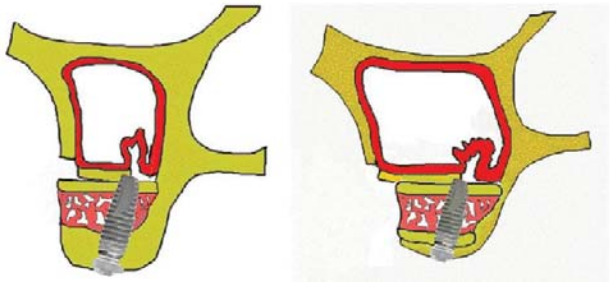

FIGURE 2: Left panel: Rehabilitation of sinus with 4mm or more of residual bone. Inlay graft of fresh frozen bone (FFB) monocortical block. Immediate implant insertion with primary stability. Right panel: Rehabilitation of sinus with less than 4mm of residual bone. Inlay graft of FFB bicortical block. Immediate implant insertion with primary stability.

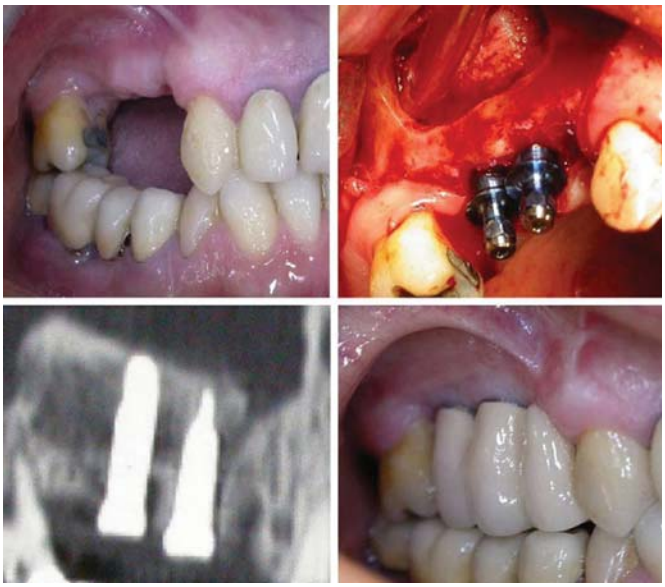

FIGURE 3: Upper posterior alveolar ridge (4mm of residual bone) treated with sinus lift of fresh frozen bone monocortical inlay graft and simultaneous insertion of two implants fixed to cortical graft plate. Definitive dental prosthesis after 12 months.

All surgical procedures were performed under local anaesthesia and under aseptic conditions. A full-thickness incision was made within the keratinised gingiva from the distal aspect of the first tooth contiguous to edentulous space to the distal end of the edentulous ridge. Vertical releasing incisions were made at the mesio-buccal line angle of the second to last existing tooth and at the distal aspect of the crestal incision. The buccal and lingual flaps were reflected with a periostal elevator, avoiding damage to the anatomic structures and the periosteum. The sinus membrane was released carefully from the inferior and lateral sinus walls and lifted superiorly.

The type of procedure performed depended on the residual thickness of the alveolar ridge: bicortical grafts for bone thickness <4mm and monocortical grafts in all other cases (**Figures 2 and 3**). In three cases where the maxillary sinus had an inadequate height and prosthetic

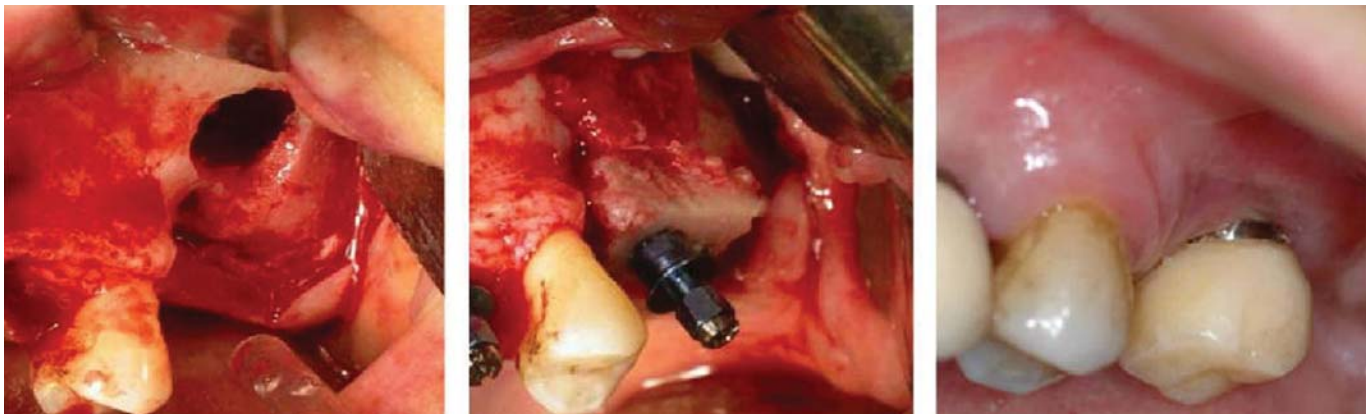

FIGURE 4: Upper posterior alveolar ridge (less than 4mm of residual bone and improvement of prosthetic space) treated with sinus lift (fresh-frozen bone [FFB] monocortical inlay graft) and simultaneous insertion of two implants. Radiographic images taken with the same spiral tomography equipment with 2mm cuts were utilised to compare the measures of each graft in three dimensions. Definitive dental prosthesis after 12 months.

space, inlay and onlay block grafts were reconstructed (**Figure 4**). In the remaining ten situations there was a combination of vertical defects and narrow alveolar ridges, and inlay and veneer grafts were therefore performed. Sutures were removed 10 to 14 days post surgery following the application of 0.2% chlorhexidine gel for two minutes to minimise bacterial contamination of the wound. At this stage the provisional prosthesis was removed. Patients were instructed to rinse twice a day with chlorhexidine until completion of the bone maturation period. Patients were subsequently assessed once a week for the first month and then once a month until second-stage surgery. The 47 cylindrical screw implants (of diameters varying between 3.75 and 4mm and lengths from 11.5 to 15mm) were positioned during this reconstruction phase and were reopened six months after surgery. All patients underwent orthopanoramic X-rays and CT scans before and immediately after surgery for control purposes. The radiological studies were repeated four months later in order to evaluate the volume and density of the bone grafts. To avoid high doses of radiation to patients, no CT images were taken four months after surgery. Radiographic images were taken with the same spiral tomography equipment, with 2mm cuts allowing comparison of each graft measurement in three dimensions. The final prosthesis was fitted after loading with provisional prosthetics for a period of six months. Further CT images will be taken three years after surgery to show the grade of bone resorption after one year of prosthetic loading.

Second-stage surgery

The study was completed by performing bone biopsies of the grafts at four, six and 12 months post surgery in order to study the histological evolution of the material. All biopsies were performed on the medullary portion of the graft vestibular to the crest. The bone biopsies were harvested with a trephine bur on the buccal side of the reconstructed alveolar ridge on medullary bone in inter-implant position. All patients gave their written informed consent. Other biopsies were not performed since it was deemed unreasonable to expect patients to undergo so many surgical procedures solely for the purposes of study. However, in two cases, bone biopsies of the graft were performed 24 months post surgery.

Bone biopsy specimen processing

The bone biopsy specimens were fixed in 4% buffered formaldehyde, dehydrated in an ascending series of alcohol rinses and embedded in a London resin. After polymerisation, the specimens were sectioned along the longitudinal axis with a high-precision diamond disk at 150µm and ground to 40µm with a specially designed grinding machine. The slides were stained with acid fuchsin and toluidine blue or with acid fuchsin and a mixture of methylene blue and Azzurro staining and observed under normal transmitted light by light microscopy. Histomorphometry was performed by connecting the light microscope to a high-resolution video camera interfaced with a personal computer. The optical system used a digitising pad and a histometry software package with image-capturing capabilities.

Results

All grafts showed optimal adherence (100%) with no evidence of complications. The resorption status of the grafts was made by comparing the post-surgery CT scans with those of four months later. At four months post surgery there was no evidence of either bone resorption or resizing in 64% of the grafts. A slight resorption was observed in 36% of the grafts, with mean values of 11.7% in height, 12.3% in width and 12.9% in thickness. These values did not interfere with the implant treatment.

At the time of reopening (six months post surgery), all implants were clinically and radiographically osseointegrated; one implant failed in the provisional prosthetic loading period, bringing the overall success rate to 97.8%. The reason for this failure may have been due to 'fibrous integration' of the implant, evidence of which appeared after prosthetic loading. All patients received a final prosthetic implant rehabilitation and no failure has been observed at this time.

The biopsies performed four months after surgery showed the presence of osteoids and the beginnings of bone neo-apposition (**Figure 5**). This is determined by the mesenchymal host cells, which differentiate into osteoblasts upon being stimulated by BMP in the bone matrix of the graft. The biopsies performed six months after surgery confirmed new bone formation and revealed the first instances of mature bone intermingled with the bone matrix of the

graft. Large concentrations of osteocytes embedded in the mature bone matrix were also observed. Surprisingly, however, there was no evidence of bone resorption, which was also verified by the very limited presence of active osteoclasts. The 12-month post-surgery biopsies demonstrated a mineralised mature bone matrix percentage varying between 75 and 80%. The reactive phenomenon of bone resorption was still not present. The two bone biopsies taken 24 months post surgery in two different patients showed a percentage of mineralised mature bone matrix similar to that observed at 12 months.

Discussion and conclusions

The ideal bone graft must satisfy the following requirements: physiological properties (osteoinduction, osteoconduction, osteogenesis, biocompatibility); anatomical properties (corticomedullary bone and structural strength); easy availability; adequate volume; substitution with new mature bone; assurance of implant osseointegration; and, an appropriate benefit/cost ratio. Autologous bone, which is generally used in prosthetic surgery, remains the gold standard because of its high degree of biocompatibility. However, the pain and complications associated with bone harvesting are not acceptable to many patients.

Use of FFB in dental surgery has become more common in recent years, and it is a reliable material for alveolar bone restoration with a predictable average of resorption.[20] Indeed, utilisation of FFB for reconstruction of the atrophic jaw prior to implant placement can be considered a reliable alternative to autogenous bone.[21-24] A study of 21 patients with 28 FFB onlay mandibular grafts prior to implant insertion (n=63) resulted in only two lost implants (i.e., survival rate = 96.8%).21 A much larger retrospective study of 287 implants inserted into resorbed maxillae augmented with FFB reported a survival rate of 98.3% over a mean follow-up time of 26 months, with a cumulative success rate based on defined criteria of 96% in the first year, which decreased to 40% at four years because of marginal bone loss.[23] No differences were detected among implant diameters, lengths and implant site.[23] Others have confirmed these findings with FFB, showing high implant survival rates irrespective of implant diameter,[25,26] length[18,19,27] or type.[28-30]

However, these previous studies have all assessed implant insertion into FFB with a time delay between bone grafting and insertion. For example, Carinci and colleagues[22] showed that a four-month delay from grafting to implant insertion was a safe period to obtain a high survival rate and success rate for implants inserted into FFB. In that study, no implants were lost (100% survival rate) and no difference was detected between implants loaded after four months versus those loaded after six or more months.[22] Our study goes one step further, being the first to use FFB as the sole bone material to increase atrophied alveolar ridge volume and to insert dental implants during the same surgical procedure, thus reducing chair time both for the patient and the surgeon. Immediate insertion of dental implants did not adversely affect the bone graft. Histological examination of our bone biopsies revealed newly formed bone integrated with pre-existing bone. Others have confirmed the excellent incorporation of FFB grafts, reporting non-discernible interface areas between new and old bone, features characteristic of mature and compact osseous tissue surrounded by marrow spaces, with no evidence of an acute inflammatory infiltrate.[24,31]

The results of the present study showed that all FFB grafts demonstrated optimal adherence, with no signs of infection, pain, oedema or graft mobility in the implant placement phase observed. FFB has many advantages over autologous bone such as the absence of donor site morbidity, lack of quantity limitation and the certification of good quality material (provided by the tissue bank). However, it is worth noting that implants placed in sinuses augmented with particulate grafts show a higher survival rate than those placed in sinuses augmented with block grafts.[32] Even though FFB does not possess osteogenic characteristics (since the freezing process causes cell death), it does have optimal osteoinductive properties due to BMP permanence and its medullar and cortical component guarantees exceptional osteoconductive properties. The availability of a large cortical component (tri- or bi-cortical) is useful for the primary stability of an implant inserted into an atrophic alveolar jawbone. Use of FFB halves surgical time and reduces the prosthetic rehabilitation period. Thanks to the reduced possibility of infection transmission (less than one per million), more than 400 patients so far have been treated at the Hospital of Castelfranco Veneto for alveolar dimension

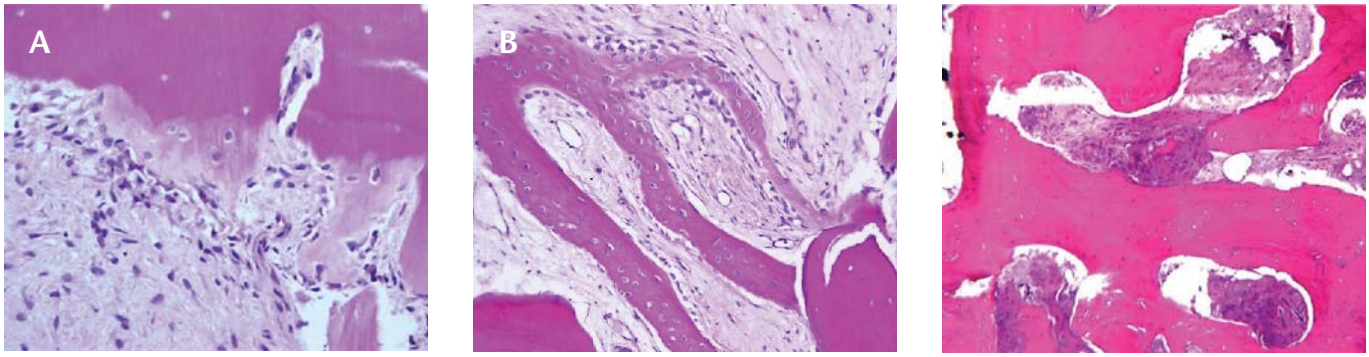

FIGURE 5: A: Bone specimen 4h months post surgery: evidence of osteoblastic activity on the surface of fresh-frozen bone (FFB) graft (magnification: x50); B: Bone specimen six months post surgery: evidence of new bone pillar formation starting from FFB graft (magnification: x20); C: Bone specimen 12h months post surgery: biopsy shows 80% of mature bone and a very low degree of residual FFB graft (magnification: x10).

improvement using FFB, with no evidence of complications.
In conclusion, FFB is an osteoinductive and osteoconductive material, which permits effective bone-adding surgery under local anaesthesia in the dental office with immediate implant insertion, decreasing both chair time and patient discomfort.

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ABSTRACTS

Toothbrushing, inflammation, and risk of cardiovascular disease: results from Scottish Health Survey

de Oliveira, C., Watt, R., Hamer, M.

Objective: To examine if self-reported toothbrushing behaviour is associated with cardiovascular disease and markers of inflammation (C reactive protein) and coagulation (fibrinogen).

Design: National population-based survey.

Setting: Scottish Health Survey, which draws on a nationally representative sample of the general population living in households in Scotland.

Participants: 11,869 men and women, mean age 50 (SD 11).

Main outcome measures: Oral hygiene was assessed from self-reported frequency of toothbrushing. Surveys were linked prospectively to clinical hospital records, and Cox proportional hazards models were used to estimate the risk of cardiovascular disease events or death according to oral hygiene. The association between oral hygiene and inflammatory markers and coagulation was examined in a subsample of participants (n=4,830) by using general linear models with adjustments.

Results: There were a total of 555 cardiovascular disease events over an average of 8.1 (SD 3.4) years of follow-up, of which 170 were fatal. In about 74% (411) of cardiovascular disease events, the principal diagnosis was coronary heart disease. Participants who reported poor oral hygiene (never/rarely brushed their teeth) had an increased risk of a cardiovascular disease event (hazard ratio 1.7, 95% confidence interval 1.3 to 2.3; $p<0.001$) in a fully adjusted model. They also had increased concentrations of both C-reactive protein (β 0.04, 0.01 to 0.08) and fibrinogen (0.08, –0.01 to 0.18).

Conclusions: Poor oral hygiene is associated with higher levels of risk of cardiovascular disease and low-grade inflammation, though the causal nature of the association is yet to be determined.

BMJ 2010; 340: c2451.

Oral health of patients with intellectual disabilities: a systematic review

Anders, P.L., Davis, E.L.

A systematic review of original studies was conducted to determine if differences in oral health exist between adults who have intellectual disabilities (ID) and the general population. Electronic searching identified 27 studies that met the inclusion criteria. These studies were assessed for strength of evidence.

People with ID have poorer oral hygiene, and higher prevalence and greater severity of periodontal disease. Caries rates in people with ID are the same as or lower than the general population. However, the rates of untreated caries are consistently higher in people with ID. Two subgroups at especially high risk for oral health problems are people with Down syndrome and people unable to co-operate for routine dental care.
Evidence supports the need to develop strategies to increase patient acceptance for routine care, additional training for dentists to provide this care, and the development of more effective preventive strategies to minimise the need for this care.

Spec Care Dentist 2010; 33 (3): 110-117.

Reduced dietary intake of vitamin B12 and folate in patients with recurrent aphthous stomatitis

Kozlak, S.T., Walsh, S.J., Lalla, R.V.

Background: Recurrent aphthous stomatitis (RAS), commonly referred to as canker sores, is a very common and painful oral mucosal disease. Although the aetiology of RAS is not well understood, a number of factors may play a role, including nutritional deficiencies. The objective of this study was to compare dietary vitamin intake in RAS patients to that in a control group.

Methods: One hundred subjects who had suffered at least three episodes of minor RAS in the previous 12 months completed a detailed diet history questionnaire designed and validated by the US National Institutes of Health. DietCalc software was used to calculate daily dietary intakes of nine different vitamins in the study subjects. Daily intakes were energy adjusted and compared to age- and gender-matched nutrient intake data on 9,033 subjects from the US National Health and Nutrition Examination Survey.

Results: The study subjects had significantly lower daily intake of vitamin B12 ($p<0.0002$) and folate ($p<0.0001$) as compared to the controls.

Conclusions: Our results demonstrate that patients with RAS are more likely to have lower dietary intakes of vitamin B12 and folate than a control group. These results support and extend previous studies indicating a link between the aetiology of RAS and haematological deficiencies of vitamin B12 and folate. These findings suggest that consuming sufficient amounts of these vitamins may be a useful strategy to reduce the number and/or duration of RAS episodes.

J Oral Pathol Med 2010; 39: 420-423

Bone density at implant sites and its relationship to assessment of bone quality and treatment outcome

Bergkvist, G., Koh, K.J., Sahlholm, S., Klintström, E., Lindh, C.

Purpose: To investigate the relationship between bone mineral density (BMD) before implant placement, implant stability measures at implant placement, and marginal bone loss of immediately loaded implants after one year *in situ*.

Materials and methods: Consecutively recruited patients received Straumann SLActive implants loaded with fixed provisional prostheses within 24 hours. BMD was measured from computed tomographic images before implant placement. Alveolar bone quality was assessed during surgery. Implant stability – both rotational and as measured with resonance frequency analysis – and marginal bone height were assessed at implant placement and after one year. The Pearson correlation coefficient was used to calculate correlations, and significance was considered when $p<0.05$.

Results: Twenty-one patients received 137 implants (87 in maxillae and 50 in mandibles). BMD was significantly correlated with bone quality classification in both arches ($p<0.001$). Mean BMD was also significantly correlated with stability values ($p<0.001$). Mean marginal bone loss at implant surfaces differed, but not significantly, at the one-year follow-up, regardless of BMD values ($p=0.086$) and measured stability (rotational stability $p=0.34$, resonance frequency analysis $p=0.43$) at implant placement.

Conclusion: Within the limits of this study, it can be concluded that computed tomographic examination can be used as a preoperative method to assess jawbone density before implant placement, since density values correlate with prevailing methods of measuring implant stability. However, in the short time perspective of one year, there were no differences in survival rates or changes in marginal bone level between implants placed in bone tissue of different density.

Int J Oral Maxillofac Implants 2010; 25 (2): 321-328.

Advertising your practice

In the latest article from Dental Protection, ALASDAIR McKELVIE explains how to advertise your practice while observing Dental Council guidelines.

Wherever you practise in Ireland, the worldwide recession is being felt by nearly all dentists in one way or another. Increased running costs, and fewer patients willing to invest in their dental health, have placed an increased significance on the ability of the practice to maintain or increase its turnover. This has been compounded by the recent cutbacks involving both the PRSI and DTSS schemes. For a practice to remain viable, it is not only essential to maintain a stable patient base, but to look for ways to increase it by attracting new patients. Often this is by word of mouth, but more and more of our colleagues now rely on advertising to bring in new patients. In a more consumerist environment patient loyalty is sometimes stretched as patients increasingly look for better services and competitive pricing, basing their decisions less on the recommendations of others and more on the ability of the practice to market itself.

Communication

Advertising is an aspect of the marketing process that communicates directly with patients. The purpose is to provide sufficient incentive for the potential patient to pick up the phone (or email) and arrange an appointment. Not all of us are comfortable with the idea of selling our skills through advertising, yet an increasing number of our colleagues seem to take advantage of a variety of advertising opportunities to attract new patients.

Relying less on mail shots and Yellow Pages adverts, currently the main vehicle for spreading the word about ourselves and our practices is the use of promotional advertorial in glossy magazines and on websites. The difficulty with these formats is the inability to control just who has access to the information – your audience will often include your competitors. It is only human nature to want to know what other businesses are doing and what the competition is saying. In some cases such announcements can be positively inspirational, but in a few rare cases the text of the advertisement may actually be misleading.

The Dental Council's view

The Dental Council relaxed its views on advertising in 2008, and it is worth reading their recent Code of Practice on Public Relations and Communications, which can be downloaded from their website (www.dentalcouncil.ie). As far as the Dental Council is concerned, adverts should not be misleading and should not make claims that cannot be substantiated. If you look at the guidance given by the Council in relation to communications, you must be certain that any claims of specialisation are exclusively attributed to those on the Register of Specialists. It is so easy to claim on a website or in an advertorial that you have a special interest in, say, cosmetic dentistry, or perhaps implant dentistry. It may be true, but you risk upsetting your colleagues and coming to the attention of the Council by inferring that you possess greater skills and expertise than your colleagues.

In Dental Protection's experience, complaints about misleading advertising to the Dental Council almost always come from aggrieved colleagues rather than from patients and they are usually made anonymously. It is often better to set out details of the treatment that is available from the practice in the practice brochure and/or website so that members of the public can make an informed choice whether to attend for advice and treatment. However, it is advisable to ask a dento-legal adviser to cast their eye over any proposed advert or potential article for an opinion on the way it is likely to be viewed by the Dental Council.

Designers and agencies

The Dental Council guidance states that registrants should avoid making self-promoting references to any associations or societies to which they may belong, if these are not qualifications that appear in the Dentists' Register. This applies to any advertising material they produce, whether paper or electronic. Most dentists rely on third-party assistance when creating websites and advertorials. Sometimes curriculum vitae will be requested by the agency preparing content to publish. In this way it is very easy for material to appear in the final text that the Council would not wish to see advertised. The obvious way to prevent this is for the dentist to maintain absolute editorial responsibility for checking and reviewing draft text. You can hardly expect all website designers or copywriters to fully appreciate the requirements and expectations of the Council.

On the other hand, you might reasonably expect the third party helping you with your promotion to be familiar with the governance laid down by the Advertising Standards Authority in Ireland. On

occasions this requirement is sometimes overlooked. The ASA expects all marketing communications to be legal, decent, honest and truthful. They also expect all marketing communications to be prepared with a sense of responsibility towards the consumer and society in general. Any complaint made to the ASA is likely to be fully investigated and you would be expected to provide written observations and to follow up any remedial action recommended to avoid further sanction.

Photographs

The practice website also provides you with the opportunity to showcase your talents and many dentists will wish to include before and after photographs of their most successful cases in order to promote their skills. Clinical photography is a valuable tool for recording clinical information and the images become part of the clinical records. The use of these images is, therefore, restricted by data protection laws and your duty of confidentiality to each patient. If you intend to use images of your patients in any marketing or advertising campaign, it makes sense to obtain written permission from each patient whose image or images you intend to use. Many patients are only too flattered to be asked; however, it makes sense to avoid any doubt by fully informing each patient who agrees to the use of images in this way, and obtaining their consent in writing.

Finally, some of the more IT aware among us will have considered the potential of social networking sites for attracting business. Twitter, Facebook and blogging can all be used to target and attract a new patient base. Once a Twitter account is up and running the website page is visible to the public and although users are limited to a maximum of 140 characters per post or 'tweet', it is important to remember how easy it might be to 'tweet' something inappropriate. In a similar way, a Facebook site can allow you to communicate with your patients and market your practice; however, you must always be aware of your responsibility to uphold the standards expected of a dental professional. The same applies to those who might have the job of tweeting on your behalf. A little time spent briefing the practice team on these obligations is time well spent if any of them are involved in promoting the practice.

Alasdair McKelvie BDS LLM *graduated from Dundee and worked in general practice, and has a particular interest in restorative dentistry. He was appointed as a full-time dento-legal adviser at Dental Protection in 2008. In addition to handling cases for members in Ireland Alastair is Dental Protection's Deputy Lead for South Africa.*

FACT FILE

Metal ceramic versus all ceramic restorations: part 1

This short series by Dr Seamus Sharkey will examine two general methods of creating aesthetic indirect full coverage restorations. It will look at the classification, methods of manufacture and indications for each type of material and the general evidence base behind each.

Metal ceramic restorations

Classification

The metals used are classed as high noble, noble or predominantly base metal. This is combined with a further classification (1-4) based on hardness and other physical properties (American Dental Association classification).

Soft burnishable metals (ADA Class 1) are used for knife edge finishes or metal inlays. A more rigid metal (ADA Class 3) is needed for fixed partial dentures to prevent flexure. Colour is not used to differentiate, as high noble or noble metals can be gold or silver in colour depending on the palladium content (>10% makes the alloy silver in colour). Base metals are very hard and rigid, and can be effectively micro-mechanically roughened (via sandblasting) and therefore bonded to the tooth structure using adhesive resins (caution is needed for patients with nickel allergies).

The ceramic used in metal ceramic restorations needs to be chosen carefully to be compatible with the metal (especially the thermal properties of each). Dental laboratories should use the same manufacturers for their alloys and ceramics, as variations exist between companies. The major advances in technology for these ceramics include the use of vacuum-fired furnaces, creation of more aesthetic opalescent porcelains and development of reliable shoulder porcelains.

Method of manufacture[1]

Below is a brief outline with some illustrations (**Figure 1**):

- The impression is poured and mounted. Individual dies are made of the preparations.
- A full contour wax-up is made on the working cast and wax margins are refined on the dies. The thickness of the ceramic 'cutback' from the wax-up gives the shape of the underlying supporting metal. This metal needs to be 0.3-0.5mm thick to support the porcelain. A wax pattern of the substructure is invested and cast (alternatively, frameworks can now be milled via computer aided design-computer aided manufacture [CAD-CAM] machines).
- A metal framework is veneered with ceramic layers (opaque, opacious dentine and enamel) of feldspathic porcelain. Terada[2] has shown that base metal restorations can be masked as effectively as noble metals provided there is enough room for porcelain build-up.

All ceramic restorations

Classification

A simple classification system was proposed by Kelly,[3] which was based on the structure of the ceramic and is outlined below. A greater understanding of the structure will lead to improved material selection and better outcomes.

Predominantly glassy

This is essentially the same feldspathic porcelain used in metal ceramic porcelains and is a brittle material, which will fracture easily if unsupported.[4] These ceramics are currently used for making feldspathic veneers (Vita Omega, Vita Zahnfabrik, Germany). They are supported during the manufacturing process on either a heat-resistant refractory die or on a thin platinum foil adapted over a conventional die, as shown in **Figure 2** (it can also be milled from blocks of pre-fired ceramic using systems like the Cerec 3 [Sirona]). They need to be adhesively bonded to maximise their structural properties. They can be made virtually see-through or translucent and can mimic the optical properties of enamel extremely well.

Particle filled glass ceramics

These consist of a glassy supporting matrix that is re-inforced by adding particles to it. The particles most commonly used are 55%

FIGURE 1a: Full contour wax-up of FPD.

FIGURE 1b: Cast framework with index of original wax-up showing proposed ceramic contour.

FIGURE 1c: Porcelain applied to metal and contour confirmed.

FIGURE 2a: Platinum foil adapted over die of single veneer.

FIGURE 2b: Porcelain powder supported by platinum foil before firing.

FIGURE 2c: Completed feldspathic veneers after staining and glazing. Foil to be removed.

FIGURE 3a: Wax patterns attached to sprue and placed in investing ring before investment poured.

FIGURE 3b: Investment stone with plunger in place after ceramic ingot pressed.

FIGURE 3c: Devested all ceramic pattern replicating wax pattern.

leucite (IPS Empress 1, Ivoclar Vivodent, Liechtenstein) and 75% lithium disilcate (IPS Empress 2 or E-max). Empress 2 is about three times stronger than Empress 1 but the different particles do change the optical properties slightly.[5]

These materials are termed pressed ceramics because of the method of manufacture used. As illustrated in **Figure 3**, a copy of a wax pattern is made by investing it and ceramic is forced into the pattern under heat and pressure. They can be used as either a full contour restoration with surface staining customising the colour, or as cores on which the incisal half of the tooth is built up in conventional feldspathic porcelain (**Figure 4**). They can also be milled from pre-pressed blocks.

Polycrystalline cores

These are the high strength core ceramics that replace the metal of a metal ceramic restoration and support the overlying ceramic veneer. They contain no or very little glassy matrix and are usually made from alumina or zirconia:

- Procera Alumina (Nobel Biocare, AB) is made by scanning the master die of the tooth using a contact or laser scanner and producing a computer model of it (**Figure 5**). An alumina slurry is applied to a precisely enlarged die and sintered.[6] This sintering process shrinks the alumina and enlarged die back down to the original dimensions of the master die and a densely packed (99.9%) alumina core is produced onto which glassy porcelain can now be layered over.
- Zirconia cores such as Lava (3M ESPE, St. Paul, Minn) and Procera (Nobel Biocare, AB) are usually manufactured by CAD-CAM milling of a block of yttrium-oxide partially stabilised zirconia (Y-TZP) in a pre-sintered 'green' state, which is softer and results in less wear of the milling tools. Y-TZP is chosen as it undergoes a phenomenon known as transformation toughening,[7] which will slow down the progress of a propagating crack.

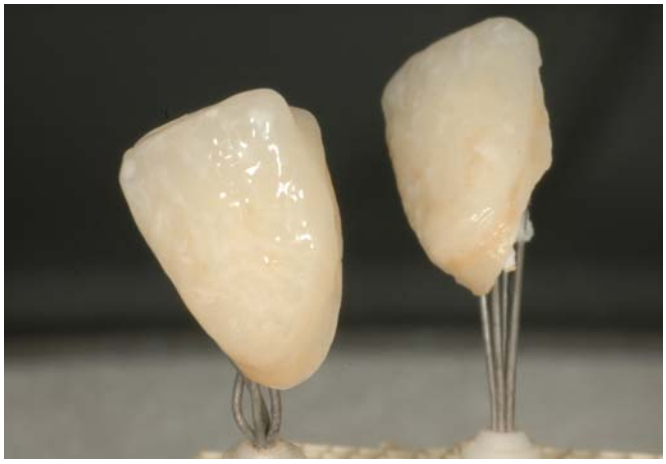

FIGURE 4a: Final pressed veneers from Figure 3 finished using surface stain and glaze.

FIGURE 4b: Alternate method of manufacture where core of pressed ceramic is used and incisal half of the restoration is characterised by layering predominantly glassy porcelain onto the pressed core.

FIGURE 5a: Contact scanner used to scan shape of die or abutment.

FIGURE 5b: Alumina core returned to original master die after fabrication.

FIGURE 5c: Two alumina cores returned to master cast after design and fabrication. The core in the upper right central incisor position is fitted to an all ceramic implant abutment for a cement retained restoration.

FIGURE 6a: Alumina cores in Figure 5 with dentine porcelain built over the cores.

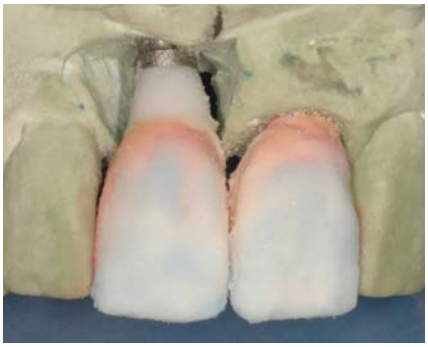

FIGURE 6b: Enamel porcelain powder layered on top of dentine powder.

FIGURE 6c: Finished restorations after glazing. Zirconia implant abutment used to retain upper right central incisor crown also shown.

Zirconia cores have high mechanical strength and fracture toughness,[8] and some companies offer a five-year guarantee against core fracture. This, however, only applies to the core material.

The high strength core (alumina or zirconia) is veneered with a predominantly glassy porcelain (**Figure 6**) or a particle filled porcelain depending on the system being used. This is done in exactly the same way as outlined previously. The veneering porcelain remains the weak link of the restoration, and chipping or fracture of the veneer can occur.

Conclusion

The individual methods of manufacture and microstructure of the different types of ceramic can have an influence on their selection and success. Part 2 will explore some of the evidence associated with these restorations, and how using this evidence can improve our outcomes for both metal ceramic and all ceramic restorations.

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QUIZ Answers (questions on page 177)

Submitted by Dr David Finucane.

1. What is the clinical significance of the carious lesion in the mandibular left first primary molar (tooth 74)?

A broken down marginal ridge, as evident in tooth 74, is indicative of pulp horn inflammation in class 2 carious lesions of primary molars. The distal pulp horn of tooth 74 is likely to be inflamed.

The carious lesion is greater than one-third of the inter-cuspal width; therefore, intracoronal restoration is not suitable, as insufficient retention is available. A stainless steel crown (SSC) is indicated.[1-3]

2. What further information is required to make a diagnosis?

History

No history of pain, or pain of short duration in response to stimulus, indicates the likelihood of the pulp being vital, or reversibly inflamed. A history of spontaneous pain of long duration, or swelling, indicates the likelihood of irreversible pulp inflammation, or necrosis.

Radiographs

The radiograph should show the furcation area of the tooth in question. Inter-radicular radiolucency or internal resorption indicates pulp necrosis.

3. How should this tooth be restored?

In the absence of symptoms, restoration of tooth 74 requires indirect pulp treatment, or pulpotomy (ferric sulphate or MTA recommended), and an SCC. If spontaneously symptomatic, history or presence of swelling, evidence of inter-radicular radiolucency, or uncontrollable pulpal bleeding during pulpotomy procedure, tooth 74 requires pulpectomy plus SSC, or extraction.

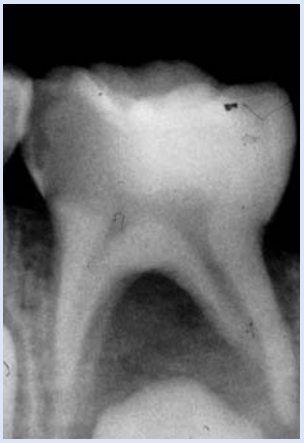

FIGURE 3: Inter-radicular radiolucency.

FIGURE 4: Inter-radicular radiolucency and internal resorption mesial root.

4. How successful is the treatment likely to be?

- Five-year survival estimate for SSCs: 80-97%.[4-6]
- Success of indirect pulp cap, when tooth restored with SSC: >90% at three-year follow-up (success is greater in second primary molars than in first primary molars).[7-9]
- Success of ferric sulphate pulpotomy: >90% at two years.[10]
- Success of MTA pulpotomy: >95% at 12 months.[11]
- Success of pulpectomy: 86% at 36 months follow-up.[9]

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Classified advert procedure

Please read these instructions prior to sending an advertisement. On the right are the charges for placing an advertisement for both members and non-members. Advertisements will only be accepted in writing via fax, letter or email (fionnuala@irishdentalassoc.ie). Non-members must pre-pay for advertisements, which must arrive no later than September 6, 2010, by cheque made payable to the Irish Dental Association. If a box number is required, please indicate this at the end of the ad (replies to box number X). Classified ads placed in the Journal are also published on our website www.dentist.ie for 12 weeks.

Advert size	Members	Non-members
up to 25 words	€75	€150
26 to 40 words	€90	€180

Non-members must send in a cheque in advance with their advert.
The maximum number of words for classified ads is 40.

Only if the advert is in excess of 40 words, then please contact:
Think Media
The Malthouse, 537 North Circular Road, Dublin 1.
Tel: 01-856 1166 Fax: 01-856 1169 Email: paul@thinkmedia.ie

Please note that all classified adverts MUST come under one of the following headings:
Positions Wanted
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Practices Wanted
Unwanted/Second Hand Equipment for Sale

Classified adverts must not be of a commercial nature. All commercial adverts must be display advertisements, and these can arranged by contacting Paul O'Grady at Think Media, Tel: 01 856 1166.

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Long-established well-appointed/equipped Dublin 9 practice seeks associate to replace colleague departing mid June. Excellent opportunity for suitable candidate. Replies please Email: 012thdoc@gmail.com.

Associate dentist required for immediate start, joining a busy Dublin 2 multi-surgery practice. Fantastic location and conditions. An opportunity not to be missed! Call Emmet, Tel: 086-818 7373, or Email: emmet@smiles.ie.

Purley, Surrey. NHS/private computerised family practice with Cerec and digital radiography requires cheerful caring associate. Initially three days a week to increase to full-time asap. Easy access to London and South Coast. Tel: 0044 20 8660 6565 (practice), or 0044 7971 624952.

Part-time associate required for south Dublin practice, replacing departing colleague end of July. Friendly staff, OPG, digital practice, private and PRSI. Email CVs to info@blackglendental.ie.

Part-time associate wanted for very modern and well-equipped dental practice in Co. Kerry. Tralee area. Please Tel: 087-982 1604.

Pembrokeshire, west Wales – full-time associate. To take over full-time NHS list. £160,000 contract. 50% plus lab bills. Private work also encouraged. Experience preferred but will consider new graduate. Start September/October. Tel: 0044 1646 692215 (daytime), or 0044 1646 687724 (evenings), or Email: s.rbadham@btinternet.com.

Part-time associate wanted for well-established private practice in south county Dublin. Friday and Saturday available. Computerised, Cerec, full support. Minimum three years experience required. Email info@dalkeyclinic.com.

Locum required for maternity cover, Abbeyleix, Co. Laois. For six months from October/November 2010. Experience essential. Please Email CV to: abbeyleixdental@ireland.com.

Dental locum required for two weeks in July and one month in October/November for busy practice in Midlands town just off motorway. Full- or part-time. Please reply with CV by Email: cedar.clinic.dental.surgery@gmail.com.

Locum required for month of July. Modern practice. West Dublin. Email: dublindentist@utvinternet.com.

Newtownstewart, Co. Tyrone. Locum dentist required for six months from August/September. Potential for permanent position. Tel: 028 8166 2808, or Email: joannedunbar@utvinternet.com.

Specialists looking for rooms: join specialist orthodontic practice in Midlands. Email: info@acebraces.ie.

Prosthodontists, orthodontists and other specialists looking for rooms. Join specialist oral surgery and implants practice in Heuston South Quarter, Dublin 8. Email: oralbeacon@gmail.com.

Experienced friendly hygienist required for one session per week in busy Dublin northside practice. Email, including CV, to: dentcare.okeefe@gmail.com.

Qualified dental surgery assistant wanted full-time from September for new private prosthodontic and oral surgery practice in Leopardstown. Experience preferred but not essential. Must be willing to work some early/late sessions and Saturdays. Tel: 086-385 4617, or Email CV to: ciarabev@yahoo.com.

Qualified and experienced dental surgery assistant wanted full-time from September for general dental practice in Kilkenny City. Contact Colin, Tel: 086-234 8464, or Email CV to: colinohehir@hotmail.com.

EQUIPMENT FOR SALE

Dental chair unit for sale – Kavo 1056 with Cuspidor and light, just three years old. Also Kodak x-ray and Melag vacuum steriliser, price neg. Tel: 087-205 6456.

PRACTICES FOR SALE/TO LET

For sale – well established, very busy practice in Dublin 14. High profile – private/PRSI. Excellent figures and profits. Two surgeries fully computerised. New equipment. Excellent staff, nurses, hygienist, endodontist. Big growth potential. Leasehold 700sq f. Recently refurbished. Website. Tel: 086-807 5273, or Email: niall@innovativedental.com.

DIARY OF EVENTS

SEPTEMBER 2010

IDA Golf Society – Captain's Prize
September 4 Co. Carlow Golf Club
Tee reserved 11.00am-1.00pm. Cost €80. For further information contact Ciaran Allen, Tel: 047-71400 (day) or 086-833 7318 (evenings), or Email: ciaran.allen454@gmail.com.

Metropolitan Branch, IDA – Scientific Meeting
September 16 Hilton Hotel, Dublin 2
Speakers are: Dr Fiona O'Shaughnessy on 'Recession busting tips for your practice', and Dr Pat Ormond on 'Lesional dermatology for dentists'.

2nd Congress of the European Society of Microscope Dentistry
September 16-18 Vilnius, Lithuania
For further information, see www.eventure-online.com/eventure/welcome.do?type=participant&congress=138_ESMD.

Irish Academy of American Graduate Dental Specialists (IAAGDS) Annual Scientific Conference
September 25 Radisson Blu Royal Hotel, Golden Lane, Dublin 8
9.00am-1.00pm (short lectures) – free to attend for all dentists

OCTOBER 2010

IDA Public Dental Surgeons Seminar
October 6-8 Clarion Hotel, Sligo
For further information contact Dario in IDA House, Tel: 01-295 0072.

Metropolitan Branch, IDA – Scientific Meeting
October 14 Hilton Hotel, Dublin 2
Speaker is Professor Bob Cronin on 'Diagnosis and restoration of the severely worn dentition'.

EFAAD – the European Federation for the Advancement of Anesthesia in Dentistry – Annual Meeting
October 14-15 The Royal and Ermitage Resort, Evian-Les Bains, France
For further information, see www.efaad2010.squarespace.com.

NOVEMBER 2010

FTI 2010 – The 2nd Future Trends in Implantology International Dental Conference
November 11-13 Florence, Italy
For further information, see www.ftidental.com.

CEA Dental – San Diego Dental Convention
November 12-13 Marina Village Conference Centre, San Diego, CA.
For further information, see www.ceadental.com.

Munster Branch, IDA – Annual Scientific Meeting
November 12 Fota Island Hotel and Spa, Co. Cork.
For further information contact Catherine Nevin from the Postgraduate Medical and Dental Board, Tel: 021-490 1294, or Email: c.nevin@ucc.ie.

Metropolitan Branch, IDA – Scientific Meeting
November 18 Hilton Hotel, Dublin 2
Speakers are Dr Dermot Kavanagh on 'FAQs: Five ortho questions dentists ask', and Dr Ed Cotter on 'Repairs, relines, remounts, reappraisal – all the daily Rs'.

Orthodontic Society of Ireland Meeting – Damon Symposium
November 19-20 Four Seasons Hotel, Dublin
Speaker is Dr Alan Bagden.

JANUARY 2011

Metropolitan Branch, IDA – Scientific Meeting
January 20 Hilton Hotel, Dublin 2
Speakers are Professor Stephan Renvert on 'Peri-implantitis – the new dilemma', and Dr Pat Cleary on 'Endodontics saves teeth'.

FEBRUARY 2011

Metropolitan Branch, IDA – Annual Scientific Meeting
February 18 Hilton Hotel, Dublin 2
Speakers are Dr Robin Seymour on 'Oral health and systemic diseases, where are we now?', Dr St John Crean on 'Recognising medical conditions in the dental patient', and Dr Paul McEvoy on 'Problem solving with Cad Cam ceramics'.

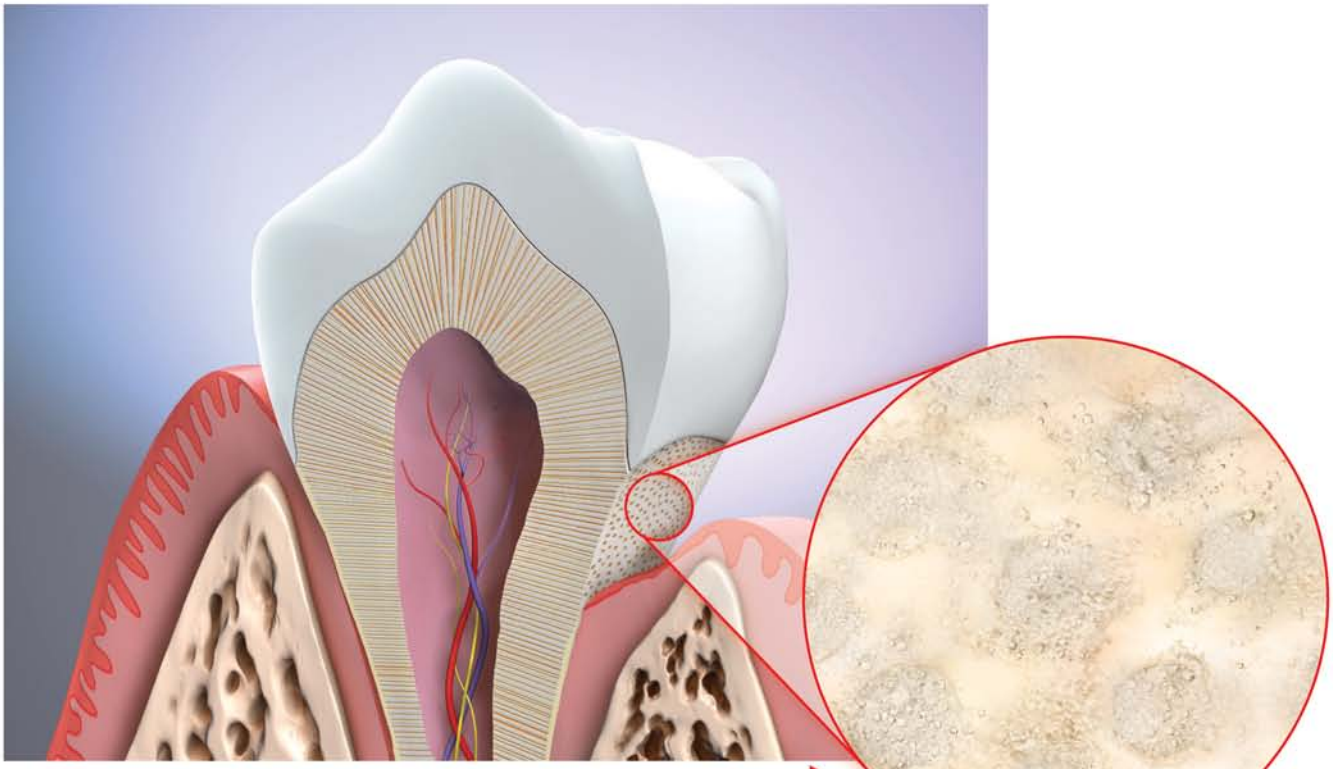
APRIL 2011

Orthodontic Society of Ireland – Meeting
April 15-16 K Club, Co. Kildare
Speaker is Dr Hugo De Clerck.

OCTOBER 2012

21st Congress of the International Association for Disability and Oral Health
October 17-20 Sydney, Australia.
For further information, see www.iadh2012.com.

Introducing Pro-Argin™ Technology – a breakthrough in dentine hypersensitivity relief



Pro-Argin™ Technology plugs dentine tubules to help block pain stimuli*

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Precision of fit for ideal load transfer and long-term stable screw joints.

Wide variety of bars and attachments for fixed and removable solutions.

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*Clinical screws are only included for Nobel Biocare implants. **Availability of attachments may differ from country to country depending on regulatory clearance. However, all bars are delivered pre-tapped to accept the desired attachments.

Disclaimer: Some products may not be regulatory cleared/released for sale in all markets. Please contact the local Nobel Biocare sales office for current product assortment and availability.