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We speak to the man who hears the dental complaints.

Data protection, patient records and the law.

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¹ UK Adult Dental Health Survey 2009, NHS Information Centre for Health and Social Care.
Outrageous, unacceptable, unnecessary infliction of pain

Honorary Editor LEO STASSEN calls on all dentists to communicate the unnecessary pain being suffered by their patients to public representatives at every level and in every part of the country.

Results from two surveys carried out by and for the Association in the last month (see p286) have put flesh on the bones of the case made by dentists against the cuts to provision of oral healthcare by the State. The results are shocking despite the almost heartbreaking fact that they were precisely as predicted by the Association when the cuts were made. So, heading into 2013, we face the appalling reality that since the time of the cuts in January 2010:

- 77% of general dental practitioners (GDPs) have seen an increase in the number of patients presenting in pain;
- 88% have seen an increase in the number of emergencies; and,
- 93% have seen an increase in the number of extractions carried out.

This is evidence (from the IDA’s own survey) of the infliction of unnecessary pain and suffering on the public at large. Further evidence is provided by the survey carried out by the independent research company, Behaviour & Attitudes, on behalf of the Association. It showed that up to one million people are postponing dental treatments due to cutbacks to State schemes. Already, we see that 220,000 people have missed time from work or school in the past year with a dental problem.

And if these two surveys were not enough evidence, our new President of the Public Dental Surgeons Group within the Association, Dr Padraig Halvey, tells us (see p284) that young teenagers as a group are displaying alarming levels of dental disease. Worse, he states, is that the plight of these young teenagers is being exacerbated by the HSE’s failure to meet its obligations to children under 16.

As trusted professionals, we need to speak out

Dentists are primarily scientists and healthcare providers. We are trusted sources of care and advice for patients and hence we are not, as a profession, given to wild statements or expressions of outrage. However, the time has come for dentists to augment the Association’s ongoing dialogue with Government by engaging forcibly with their local public representatives. Some plain speaking is required. It is outrageous and unacceptable that pain that could be prevented is being inflicted on our patients. This needs to be communicated at every level and in every county to councillors and TDs. And the stupidity of the short-sightedness can be highlighted by dentists by saying that the Government is currently ensuring that dentists are going to be very busy in the medium to long term as a result of these years of neglect – and the Government will probably end up paying out more in the long term.

Good news

It’s not all bad news in this edition. Congratulations to Dr Halvey on his election, to Dr Peter Gannon on his nomination as President Elect, and to Professor John Clarkson on his honorary doctorate from Malmo University. And while we see that the RCSI’s Faculty of Dentistry held an excellent Annual Scientific Meeting in October, we look forward to both the Association’s Practice Management Seminar on January 26 in Croke Park and the Annual Conference on the theme of ‘All hands together’ in Galway in April 2013.

On the face of it, the operation of a Dental Complaints Resolution Service might not seem a good news item – but it is. Michael Kilcoyne is already succeeding in reconciling complaints by patients about dentists and that is very good news for dentistry in general – see interview with Michael by Ann-Marie Hardiman (pp318-320).

Scientific content

Una Lally (pp294-300) has given us an excellent paper on resin-bonded fixed partial dentures. The paper outlines some of the advances that have improved them and made them more predictable. However, she also warns that while some alternatives have shown promise, there is a need for long-term data.

Hannah Gallivan and Joan Tiernan from UCD (pp308-315) have assessed the reasons why some members of the Association are not actively involved. They recommend that the Association should target the inhibitors of engagement, a critical sentiment given the crisis in oral healthcare provision by the State.

However, it is Timothy Donley’s paper (pp305-307) on the connections between oral and overall health that is most relevant given the withdrawal of oral healthcare from large sections of the population by the State. He is appropriately cautious about the evidence of a causal relationship between oral inflammation and overall health, but says that it may lead to an increased risk of a number of chronic inflammatory diseases.

Season’s greetings

I wish to thank everyone that has been involved in the production of the Journal throughout 2012. We have managed a series of strong editions and a landmark supplement on fluoride. I wish all dentists and our colleagues a happy Christmas and a peaceful and prosperous 2013.
On the road

IDA President ANDREW BOLAS has been busy representing the Association at home and abroad.

ADA Conference
Fintan and I had the pleasure of being invited to represent the Association at the American Dental Association (ADA) Conference in San Francisco on October 18. The event was spectacular, with up to 36,000 attendees on any given day. The ADA made us feel most welcome, and we had the opportunity to network with many of their staff and speakers. It was interesting to note that despite its size and quality, it lacks the social aspects that we have at our conference.

Irish Dental Hygienists Association Conference
I was also a guest at the IDHA’s conference in Limerick in November, an event that marked the Association’s 25th anniversary. I was fortunate to be asked to speak on their programme after Sue Boynton was snowbound in New York. Congratulations to the IDHA on organising a very successful conference.

Faculty of Dentistry Annual Dinner
I also attended the Annual Dinner of the Faculty of Dentistry in the Royal College of Surgeons in Ireland in October. An enjoyable evening, with the usual ‘battle of the bling’ comparing chains of office.

Practice Management Day - January 26, 2013
The IDA will hold its fourth Practice Management Day on January 26 in Croke Park. What started as a kneejerk reaction to severe cuts in the Budget in December 2009 has now turned into a proactive day for dentists as business owners. I would encourage all dentists in private practice to attend what has proven to be an excellent event year upon year.

CPD Roadshows
The first round of the CPD Roadshows has concluded, and they will start up again on February 9 in Galway. The format of the day is an ideal way for dentists to gather their CPD points. Attendances have been good and the quality of the speakers has been excellent. I would encourage everyone to take advantage of these events on your doorstep.

Changes in the HSE
The HSE and the Public Dental Service are undergoing huge changes at the moment. The HSE Dental Surgeons Committee is now entering the second phase of consultations regarding the structures of the service. I hope the policy makers are taking the opportunity to ensure that the changes deliver for our patients.

News watch
I see in the papers that man’s best friend might not necessarily help their perio! Researchers have found that certain bugs in a dog’s saliva may contribute towards periodontal disease – I must remember not to let the dog lick the kids’ faces! Also, Chris De Burgh has revealed that cutting his tube of toothpaste in half allows him to get more money’s worth out of the tube: this from a man worth how many millions…

Happy Christmas!
Finally, I wish you and yours a Merry Christmas and a very happy New Year!

Dr Andrew Bolas
President
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Young teenagers failed miserably by HSE dental cuts

A leading representative of the Irish Dental Association (IDA) has said that young teenagers – a group that displays alarming levels of dental disease – are being failed miserably by HSE dental cuts.

Dr Padraig Halvey, newly elected President of the IDA’s HSE Dental Surgeons Group, told the Group’s conference in Galway that the plight of young teenagers with dental disease was being exacerbated by the HSE’s failure to meet its obligations to children under 16.

The Public Dental Service has responsibility for the dental health of children up to age 16 and for all special care patients, both children and adults.

Figures from the IDA show that half of all 12 year olds have decay in their permanent teeth, and this rises to three-quarters of all 15 year olds. Dental decay is now the most common chronic disease children experience in Ireland.

“We are seeing extremely high rates of dental decay among young teenagers but these young people are falling through the gaps of a Public Dental Service that has been starved of resources. If a 14 year old presents at a clinic with a dental problem he or she will receive emergency treatment for that specific issue. However, they might also require multiple fillings but there is no possibility in most clinics that they will be recalled for that. The reason for that is the lack of resources and the overwhelming workload public dentists face every day,” he said.

Dr Halvey, who is based in Letterkenny, Co. Donegal, also pointed out that while a lot of children in this position had medical cards, they were not entitled to receive treatment under the Medical Card system (DTSS) because patients had to be 16 to be eligible for the limited treatments available under that scheme.

“Young teenagers are basically in limbo. The failure to provide timely treatment and screening of simple problems or early onset of dental disease causes severe deterioration. This then requires complex remedial treatments such as crowns or implants, which the State services often cannot provide and many people cannot afford,” he said. Dr Halvey told delegates that staff shortages meant that the waiting lists for oral surgery and orthodontics are getting longer all the time, while primary school screenings are being delayed or simply not carried out in some areas.

Irish dentist receives honorary doctorate

Professor John Clarkson was recently conferred with an honorary doctorate from Malmo University. The doctorate was given in recognition of Prof. Clarkson’s international reputation, of his work in the profession in recent years, and also for establishing links between Trinity College and the University of Malmo and their dental schools.

At the ceremony, which took place at the Concert Hall in Malmo, Professor John Clarkson receives his award from Professor Gunnel Svensater, Malmo University.

RCSI hosts IADR Irish Division

The Irish Division meeting of the International Association for Dental Research (IADR) was hosted recently in the Royal College of Surgeons in Ireland (RCSI). The meeting showcased research on a variety of topics including dental sedation, root caries and geriatric oral health.

During the meeting two prize competitions were held and Dr Gerry McKenna from University College Cork won the IADR/RCSI Postgraduate Prize for Clinical Research. The title of Gerry’s presentation was ‘Impact of tooth replacement on the nutritional status of partially dentate elders: a randomised controlled clinical trial’. The Dental Health Foundation Award for Public Health and Health Promotion was won by Dr Paul Brady from University College Cork with his presentation ‘End-tidal carbon dioxide changes during intravenous conscious sedation for oral surgery’. The award was presented at the meeting by Patricia Gilsenan, acting Executive Director of the Dental Health Foundation.

During the course of the meeting Dr Mairead Harding from University College Cork took over as President of the Division from Dr Fionnuala Lundy of Queens University Belfast. Under Mairead’s presidency the next IADR Irish Division meeting will be held in Cork in October 2013.

From left: Patricia Gilsenan, acting Executive Director of the Dental Health Foundation; Dr Paul Brady, University College Cork; and, Dr Mairead Harding, Irish Division IADR President 2013.
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Dentists indict Government – public now missing work/school

A survey of over 300 general dental practitioner (GDP) members of the Association has delivered a damning indictment of the effects of cuts on State dental schemes. The stark results highlight the changes in oral health of Irish people caused by the cuts. The survey showed that since January 2010:

- 77% of GDPs have seen an increase in the number of patients presenting in pain;
- 92% of GDPs have seen an increase in the frequency of gum disease seen in patients;
- 88% of GDPs have seen an increase in the number of patients presenting with dental infections;
- 88% of GDPs have also seen an increase in the number of patients presenting as emergencies;
- 84% of GDPs have seen an increase in the number of patients presenting with multiple decayed teeth; and,
- 93% of GDPs have seen an increase in the number of extractions carried out.

Unsurprisingly, given the above, 91% of GDPs have seen a decrease in patient attendance.

**Ineffective State schemes**

A striking further finding of the survey is the current lack of trust in and evident ineffectiveness of the State dental schemes. The Dental Treatment Benefit Scheme (DTBS) is the PRSI scheme for working people, which they pay for through their own contributions from their salaries and wages. A whopping 99% of dentists say that this Scheme no longer provides adequate preventive treatment for patients. Nor are the poor and vulnerable protected any better through the Medical Card. The Dental Treatment Services Scheme is available to Medical Card holders, but 98% of dentists say that it also no longer provides adequate preventive treatment.

**Public agreement**

A separate survey carried out on behalf of the Association by the independent research company Behaviour & Attitudes revealed that 26% of those in the PRSI scheme and 29% of those on Medical Cards had postponed dental treatment in the last year. A total of 21% of those in the PRSI scheme (an estimated 134,000 of the general population) have missed work or school in the last year due to a dental problem. Similarly, 26% of those in the Medical Card scheme (an estimated 123,000 of the general population) have missed work or school in the last year due to a dental problem.

Prestigious line-up at RCSI meeting

The Royal College of Surgeons in Ireland (RCSI) once again hosted an excellent Annual Scientific Meeting on October 25 and 26. The theme of this year’s meeting was ‘Restorative Dentistry and Aesthetics’, and Faculty Dean Professor Gerard Kearns welcomed delegates to a meeting that featured presentations on: psychological aspects of appearance and dentistry; aspects of smile design; composites and aesthetics; and, an update on tooth whitening. Among the highlights of the meeting was the delivery of the Edward Leo Sheridan Lecture, ‘Optimum aesthetics in implant dentistry’ by Dr Patrick Palacci, a world-renowned expert in osseointegration who is based in Marseille, France. The College also presented a number of undergraduate and postgraduate awards at the meeting. Caoimhe McVeigh was the recipient of the Prof. John McGimpsey Prize, the Dr Leo Heslin Medal was awarded to James Parish, the Dr Aidan Cowan Medal was awarded to David McReynolds, and Dr Gerry McKenna was the recipient of the IADR/RCSI Postgraduate Prize for Clinical Research.
National Dairy Council supports food choices for good oral health

Along with good oral hygiene practices and regular dental check-ups, consuming foods shown to have a beneficial impact on the dental health is also advised.

According to the National Dairy Council, as part of a balanced diet and healthy lifestyle, three servings from the ‘milk, yogurt and cheese’ food group are recommended per day, with five servings needed daily between the ages of nine and 18 years. Examples of one serving include 200ml of milk, 125ml of yogurt or 25g of hard cheese.

Numerous studies have highlighted the cariostatic properties of dairy foods. For example, research shows that milk and cheese consumption can assist tooth mineralisation, with cheese also shown to increase the pH and flow rate of saliva. A more recent study demonstrated a significant rise in the mineral concentration of dental plaque following cheese or yogurt consumption, while a subsequent study reported that a high consumption of yogurt (>4 times/week), compared to low consumption (<1 time/week), was associated with a lower prevalence of dental caries in young children.

Dairy and dental health: there’s plenty of positive literature to sink our teeth into!

References

SPECIAL COLGATE CHRISTMAS MOVIE QUIZ

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We head back to the City of Tribes in April 2013 for our Annual Conference. Following on from a very successful conference in 2010, we return to the Radisson Hotel in Galway City. A fantastic line-up of speakers has been arranged, including such names as: Dr John Kanca III, who will give a pre-conference course on composites; Dr Klaus Lang, world-renowned presenter on periodontics and implants; Professor Michael Martin, who will present on infection control; Professor Ciaran O'Boyle, who will talk about leadership; and, Dr Ailbhe McDonald, Eastman Dental Institute, UK, who will lecture on crown materials.

Other interesting speakers will include UK-based orthodontist Dr Ross Hobson, who will take a look at various orthodontic systems and how they work. The conference will continue with a team-based approach on Friday afternoon, where we hope as many members of the dental team as possible will join us. Education, and more importantly fun, is guaranteed. Presentations will be from: John Tiernan, Dental Protection; Eamon O’Muircheartaigh, who will give a very interactive presentation on neck and back problems in the dental setting; Professor Ciaran O’Boyle, who will present on leadership; and, David Brophy, Head Conductor with the RTE Concert Orchestra, who will deliver a very entertaining presentation where you might even be called upon for a musical performance … or two!

Parallel sessions will take place on Saturday, with dedicated sessions happening for dental nurses, dental hygienists and dental technicians. Our Annual Dinner will take place on Saturday night, when the glad rags and dancing shoes are taken out for this fun-packed evening!

Put the dates in your diary now: April 18-20, 2013. Not to be missed!

President Elect announced

Dr Peter Gannon has been nominated as President Elect for 2013. Peter, a native of Galway, is in general practice in Galway City. He has been involved in the GP Committee, and is currently Chair of the group. After graduating in 1995 from Trinity College Dublin, Peter worked in the DDH and then moved into private practice in Dublin and Kildare. In 2003 he returned to Galway and opened his practice in the city. Peter lives in Moycullen where he grew up, is married to Louise and they have four children. Peter was nominated by the North Western Branch.

Award for Irish dental students

Mervyn Huston and Junaid Nayyar, fifth-year dentistry students in the Dublin Dental University Hospital, were recently awarded first prize in the undergraduate category of the Dental Protection/Schülke Premier Symposium awards. They are pictured with Andrew Collier of Dental Protection (right). The title of their project was ‘Panoramic radiography, could a checklist help the audit process?’

John McKenna

We recently asked readers to tell us stories of dentists who had excelled in sport. Here is one that we have received:

John McKenna was a member of the Dental Hospital rugby team that won three Hospital Cup medals in the early 1960s, the first dentists to win the Cup since 1927. He also played on the Irish Universities water polo team for five years, while playing on Leinster senior inter-provincial teams, and he played for the UCD and Lansdowne rugby teams. After graduating from the Dental Hospital, and receiving the Hyland Memorial Award for outstanding student, John practised dentistry in London and played rugby for London Irish RFC. He was Captain of London Irish in 1965, and also Captain of the Public School Wanderers Club, and played for Middlesex. In 1966 John went to Canada to study at the University of Toronto. Subsequently, he represented Ontario and Eastern Canada in rugby. He played for Canada against England in 1967. John taught at the University of Toronto as associate professor for many years and sat on the Board of the Ireland Fund of Canada. He coached the Niagara Region rugby team in the 1970s. More recently, he was Captain and President of Hamilton Golf and Country Club, the site of the Canadian Open three times in the last ten years. John is married to Canadian Pat Hopper, whose father was general manager of Silver Mines in Tipperary for many years. They have four children. John has been in private practice in Hamilton Ontario since 1967.
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Dr Padraig Halvey takes office

Despite the pressure on members of the IDA’s HSE Dental Surgeons Group, which arose from the withdrawal by the HSE of financial support for attendance at the Group’s Seminar, there was an excellent turnout. Those in attendance were rewarded with a range of top-class speakers as well as a warm social occasion.

In terms of influence, the Secretary General of the Department of Health is one of the key people in Irish government. The current Secretary General is dentist Dr Ambrose McLaughlin and he took time to come to Galway to address the HSE dental surgeons. Among his messages was the need for the dental profession to declare its priorities and co-ordinate its lobbying on the likely future Dentists’ Act through the Association. Other superb presentations came from Professor Dan Ericson, Head of the Department of Cariology at Malmo University; and, Adrienne Dolan and Mags Curran, who explained how they developed their treatment routine for patients with autism. Their presentation included helpful video recordings demonstrating their treatment of one of their patients.

A very engaged and committed membership attended the AGM, which saw the Presidency of the group pass from Dr Jim McCafferty to Dr Padraig Halvey. Also present on the head table were: Association President Dr Andrew Bolas; Chief Executive Fintan Hourihan; and, PDS Group Secretary Dr Siobhan Doherty.

Dentist receives research award

Dr Eimear Hurley of Cork Dental School and Hospital has been awarded a Health Research Board Research Award 2012 to fund her PhD research investigating the oral microbiota of babies and pre-schoolers (ORALMET). The title of Eimear’s research is ‘The oral microbiota of Irish children: a baseline and longitudinal study in health and disease’. The identification of the oral microbiota of Irish children has not been studied to date and is now possible with the establishment of culture-independent microbiota profiling in Cork. Longitudinal investigation of the oral microbiota in infants would be the first research of its kind to be done in Ireland.

The microbiota data collected will constitute a developing ‘picture’ and a bank of information for future studies on prevention of dental caries and promotion of oral health in Irish children. The goal of this research is to identify the oral microbiome in health and disease alongside the factors that are associated with the development of both states with the ultimate goal of developing new effective methods of preventing disease through cultivating a healthy microbiome in young children.

This research is supervised by Dr Paul O’Toole, a Principal Investigator in the Genomics and Metagenomics Core of the Alimentary Pharmabiotic Centre (APC) in UCC. By being awarded this funding it is the start of an exciting relationship between the clinical oral side in Cork Dental School and Hospital, and the basic and applied microbiology side, representing great potential for translational research and new discovery.
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Dosage: Adults: 25 mg every 3 hours or 75 mg every 4-6 hours. Maximum daily dose 750 mg. Use lowest effective dose for the shortest duration necessary to control symptoms. For acute pain administer 15 minutes before meals. For short-term use only. In the elderly or those with mild to moderate hepatic dysfunction or mild renal dysfunction, initial maximum daily dose of 75 mg. Close monitoring advised in the elderly or those with hepatic dysfunction. Not recommended for children or adolescents.

Contra-indications: Hypersensitivity to dexketoprofen, the excipients or other NSAIDs, NSDM-induced effects of salicylates, tetracyclines, heparin, anticoagulants, oral corticosteroids, chronic diarrhoea or suspected upper gastrointestinal bleeding, or peptic ulcer disease. History of renal, cardiac, liver or peptic ulcer haemorrhage, or chronic diarrhoea. History of gastrointestinal bleeding or peptic ulcer disease related to previous NSAIDs therapy. History of or active peptic ulcer/haemorrhage, chronic diarrhoea or suspected upper gastrointestinal bleeding, or active bleeding or bleeding disorders. Cochr’s disease or ulcerative colitis, severe heart failure, moderate-severe renal dysfunction, severe hepatic dysfunction, haemorrhagic diathesis and other coagulation disorders, venous thrombosis, during the third trimester of pregnancy and lactation.

Warnings and precautions: Caution in allergic conditions. Avoid use with concurrent other NSAIDs including COX-2 selective inhibitors. The lowest effective dose for the shortest duration necessary to control symptoms is recommended. Gastrintestinal bleeding, ulceration or perforation which can be fatal, have been reported with all NSAIDs at any time during treatment, with or without warning symptoms or a previous history of serious gastrointestinal events. When gastrointestinal bleeding or ulceration occurs withdraw treatment. The risk of gastrointestinal bleeding, ulceration or perforation is higher with increasing NSAID doses, in patients with a history of ulcer, particularly if complicated with haemorrhage or perforation, and in the elderly. The elderly have an increased frequency of adverse reactions to NSAIDs especially gastrointestinal bleeding and perforation which may be fatal. Concomitant treatment in these patients on the lowest dose available. Ensure care of oesophagitis, gastritis and/or peptic ulcer before starting treatment. Monitor patients with history of ulcers. Special care with NSAIDs in patients with a history or gastrointestinal disease susceptible cause, Crohn’s disease. Consider combination therapy with protective agents e.g. misoprostol or proton pump inhibitors, and in patients requiring concurrent low dose aspirin, or other drugs likely to increase gastrointestinal risk. Monitor patients with a history of gastrointestinal toxicity, particularly when elderly, for unusual gastrointestinal symptoms (especially gastrointestinal bleeding) particularly in the elderly stages. Caution if patients receiving oral corticosteroids, anticoagulants, SSRI or SSRI-antidepressants. Do not use with warfarin, other coxibs or aspirin. Caution in patients with impaired renal function, receiving diuretic therapy or those who develop haemorrhage. Ensure adequate fluid intake, may increase plasma area sorption and creatinine. Caution in patients with impaired hepatic function. May increase some liver parameters. Monitor and advise patients with hypertension and/or mild to moderate heart failure. Special caution in patients with cardiac disease, especially episodes of previous heart failure. Monitor and advise patients with a history of hypertension and/ or mild to moderate congestive heart failure or fluid retention and oedema have been reported. Some NSAIDs particularly at high doses and long-term treatment may be associated with a small increased risk of arterial thrombotic events (e.g. myocardial infarction or stroke). Careful consideration before treating patients with uncontrolled hypertension, congestive heart failure, established ischaemic heart disease, peripheral arterial disease, and/or cerebrovascular disease. Similar consideration before initiating longer-term treatment of patients with risk factors for cardiovascular disease (e.g. hypertension, hyperlipidaemia, diabetes mellitus, smoking). Serious skin reactions (some of them fatal), including oedematous dermatitis, Stevens-Johnson syndrome, and toxic epidermal necrolysis reported very rarely. Discontinue treatment at the first appearance of skin rash, mucosal erosion, or any other sign of hypersensitivity. Particular caution in patients with concomitant disorder of porphyria metabolism, cataract, diabetes after major surgery. Long-term use necessary, monitor hepatic and renal function and blood count. Stop treatment at first signs of severe hypersensitivity reactions. Avoid use with warfarin. Caution in patients with theophylline-dependent, systemic lupus erythematosus or nascent connective tissue disease. As other NSAIDs, dexketoprofen can mask the symptoms of infectious diseases. Contains glucose.

Interactions: Other NSAIDs, anti-coagulants, heparins, anticoagulants, lithium, methotrexate, hydroxyurea and sulphasalazine. Diuretics, ACE inhibitors, antihypertensive aminophyllines and anadeplin e.g. receptor antagonists, pethidine, dextroamphetamine, beta-blockers, cyclodextrin and tacrolimus, thiazoles, isoniazid, anti-platelet agents and UFHR, penicillin, carboxylic acids, rifampicin, quinolones and antibiotics. Pregnancy and lactation: Do not use in pregnancy, lactation or in women attempting to conceive.

Unsatisfactory effects: As with other NSAIDs, the most common adverse events are gastrointestinal. Peptic ulceration, perforation or gastrointestinal bleeding, sometimes fatal, particularly in the elderly may occur. Common (1-10%) nausea and/or vomiting, abdominal pain, Sartos, diarrhoea. Incidence (1-1%) anorexia, nausea, headache, dizziness, somnolence, vertigo, palpitations, tachycardia, gastritis, constipation, dry mouth, flatulence, rash, fatigue, pain, anaemia, rigors. Rare (0.1-1%) anorexia, pancreatitis, syncope, hypotension, hypoglycaemia, pitting oedema, peptic ulcer haemorrhage or peptic ulcer perforation, hepatic failure, urticaria, angioedema, acniform, increased sweating, back pain, poliomyelitis, myocardial disorders, peripheral oedema, liver function test abnormalities. Very rare (<0.1%) nephropathy, haemorrhages, oedema, anaphylactic reactions including anaphylactic shock, blisters, bullae, erosions, bullous pemphigoid, myalgia, asthma, ecchymosis, oropharyngeal ulcer, urticaria, hypotension, hypoglycaemia, dysuria, diarrhoea, haemorrhage, or minor and mild haemorrhage, epistaxis, occult bleeding, buccal mucosal haemorrhages, retinal haemorrhage, papilloedema, vitreous haemorrhage or retinal hemorrhage. Other less frequent effects include: rash, erythema multiforme, angioedema, facial oedema, photosensitisation reactions, purpura, nephritis or nephrotic syndrome. Not known: large bowel oedema, haematuria, acute renal failure. As with other NSAIDs the following unsatisfactory effects may appear: aspirin, angina, which might predisruptively occur in patients with systemic lupus erythematosus or mixed connective tissue disease, and hematological reactions (gastroscopy, aplastic and haemolytic anaemia, and rare agranulocytosis and interstitial haemorrhage). Pack size: 20 sachets. Legal category: POM. Marketing authorisation holder: Menarini International Operations Luxembourg S.A., Avenue de la Caisse, L-1611 Luxembourg. Marketed by: A.Menarini Pharmaceutici S.p.A., Via Principe Amedeo di Savoia, 17, 40125 Bologna, Italy. Menarini Ireland Limited, Borough Road, Clonmel, County Tipperary, Ireland. Attention should be paid to the instructions in the Summary of Product Characteristics.
BDA/BDEF hold joint reception

The British Dental Association (BDA) and the British Dental Editors’ Forum (BDEF) recently held a joint reception in London, the BDA to introduce 15 new Principal Executive Committee directors, and the BDEF to present the Young Dental Writer of the Year Awards, sponsored by the British Dental Trade Association.

Ken Eaton, BDEF Chairman, announced the two award winners, who were presented with their cheques and certificates by Simon Tucker, BDTA president. In first place was Laura Hatton, whose moving article ‘The truth from the trenches’ explored the role of dentist Sir Harry Baldwin during World War One. In second place was Alexander Holden, a foundation dentist at Stag Dental Care in Rotherham, whose paper ‘Lost in transition – changes in communication in the leap from dental student to foundation dentist’ appeared in the British Dental Journal.

Gaelic players embrace oral health

The Gaelic Players Association (GPA), which represents senior inter-county footballers and hurlers, has provided mouth guards for its footballer members since 2010. In January 2013 the Association will launch an Oral Health Programme (OHP) for members. The GPA OHP will not only provide mouth guards for footballer members, but will also set up a nationwide network of dentists specialising in sports dentistry, and provide education and awareness on:

- general dental care;
- emergency dental care; and,
- prevention of oral disease and trauma.

With mouth guards becoming mandatory in Gaelic football, starting with underage players in 2013 and all players from 2014, “it is an ideal time to ensure that players are aware of oral health issues,” says Dr John Haughey, GPA Sports Dentistry Advisor. “The GPA OHP will give us the ability to set up a register of specialists in sports dentistry and develop a network of professionals who will be equipped to educate players on general oral health issues.”

The GPA OHP will begin by building a nationwide network of dentists. In 2013, the Programme will involve a dentist assigned to each county to provide custom-fitted gum shields to the GPA members who play football on the county panel.

On Saturday January 12, the GPA will launch the Programme with a training day for the dentist network.

“This is a unique opportunity for dentists and will provide many benefits,” added Dr Haughey. “The training day in January will involve a presentation on sports dentistry by Dr Tony Clough, Chief Dental Officer for London 2012.”

GPA Chief Executive Officer Dessie Farrell said: “The GPA is committed to shaping a better future for county players through our Career, Education, Health and Wellbeing, and Life Skills Programmes and our Benevolent Fund. The GPA Oral Health Programme represents a further commitment to the overall health and wellbeing of our members.”

Down county footballer and dentist Dan McCartan highly recommends that dentists get involved in the Programme: “Within the GAA community there is a need to improve the knowledge of the importance of good oral health. From an elite player perspective, poor oral health can have a negative effect on sporting performance. Dentists who get involved with the GPA programme will become leaders in improving the oral health of GAA players and the overall community”.

Dentists interested in getting involved, and who would like more information on the Programme, can register their interest on https://gpaforms.wufoo.eu/forms/gpa-oral-health-programme/.

From left: Frank Holloway, President, BDA; Tony Reed, Executive Director, BDTA; and, Peter Ward, Chief Executive, BDA.

From left: Ken Eaton, Chairman, BDEF; Laura Hatton, Young Dental Writer of the Year; Tony Reed, Executive Director, BDTA; and, Simon Tucker, President, BDTA.

Down dentist and footballer Dan McCartan.
Six top financial tips for 2013

It’s a new year and traditionally now is the time to commit to some well-intentioned resolutions. We all have goals; for some it might be to run a marathon in 2013, for others it might be about getting a better work/life balance. In this article, here are six ideas that could really help you strengthen your financial position in 2013.

1. Create a household/practice budget
   It’s really important to know what your income and expenditure is every month. Once you get a handle on this, you can start planning out your personal finances in a structured way. This will help you to both manage your cash flow for all the small items you need to buy, and will also help you to plan better for those bigger once-off costs such as holidays or changing the car. It is equally important to apply this to your practice. I know most dentists have done this already, some several times but it can be a good idea to have yet another look at practice costs, something may have skipped your attention.

2. Pay off your credit card every month
   We all know this one but it is surprising how many people still run up and keep credit card balances. With such penal interest rates, credit card debt can really blow a hole in the best-planned personal budgets. Make sure your credit card bill is paid off in full at the end of the month, every single month.

3. Protect your biggest asset – your income
   It’s your income that enables you to maintain your lifestyle and funds your home, school fees, car and your life itself. Your income is the glue that holds your whole financial picture together and you have worked extremely hard to get it to the level it is at, it is extremely important that you protect it and yourself from injury or illness. You can cover yourself from the first day of illness and there is now tax relief on your premiums. It would seem foolhardy not to have it in place. If you feel you need a review of your current cover, call us and we will be happy to review it for you without charge.

4. Shop around for health insurance
   Do you remember the good old days when health insurance was as easy as choosing between VHI plans A, B, C, D or E? Now with four providers in the market and nearly 300 plans on offer, health insurance has become a very complex area. With our creaking health service and the cost of health insurance rising all the time, it is really important that you get the right plan to fit both your family circumstances and your budget.

5. Make the most from your bank deposits
   If you’re in the fortunate position to have some surplus funds, it might be some money left over every month or indeed a little nest egg set aside, make sure that it is working as hard for you as possible. Don’t just leave it sitting in your current account. Check out the different deposit rates on offer with your bank and compare it with the competition including the on line banks as they can offer superior rates as they have less costs.

6. Sort out your pension funds
   We come across so many dentists that have several pension funds in different places, invested in different things, with different risk levels, performing poorly leaving the holder with great concerns about it and really not knowing what to do with it next. If this sounds familiar or you are just looking to start a pension you need independent advice as to the best way to go forward from here. The tax savings are extremely beneficial to you, and if you invest your pension conservatively to avoid ‘Black Swans’ you can build up a significant pot of savings that you will be able to access at age 60, some of it tax free. It is currently the most efficient way to build up wealth while you continue to work in your practice. You also need to assess the following with your pension funds in mind.

(a) Know the risk of your investments
   Make sure that any investments you have in place reflect your personal appetite for risk. How important is capital protection to you? Will you be able to sleep if the values of your investments fall in the short term? Ensure your financial adviser has designed an investment portfolio that reflects your own appetite for risk.

(b) Have clear retirement targets
   Planning for your retirement needs to be carefully thought through, taking into account your desired retirement age, your required income in retirement, your cash flow available for retirement saving and your appetite for risk in your portfolio along the way. Talk to an independent financial adviser who can provide you with unbiased advice to develop the right pension planning portfolio for you.

Omega Financial Management
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Tel: 1850 260 261 Email: dentists@omegafinancial.ie
www.omegafinancial.ie
OFM Financial Ltd, T/A Omega Financial Management is regulated by the Central Bank of Ireland
Resin-bonded fixed partial dentures past and present – an overview

Précis
This article aims to provide a general overview, along with guidelines and recommendations for use, of resin-bonded fixed partial dentures in practice.

Abstract
Resin-bonded fixed partial dentures have been in use for over 30 years, since the concept was first introduced in the 1970s. Initial efforts in this field suffered frequent early debond, but advances in metal alloys, treatment of the fitting surface and bonding techniques have made the resin-bonded fixed partial denture a predictable treatment modality. Design principles have also evolved. Originally these restorations were retained purely through adhesion, but now minimal preparation of the abutment teeth may be undertaken to optimise mechanical resistance and retention forms. This facilitates delivery of a more predictable medium- to long-term restoration. Alternative materials such as ceramic, zirconia and fibre-reinforced composite resin have emerged for retainers. While these alternatives show promise, they are not without their disadvantages and do not yet have long-term data regarding their use for this application.

Introduction
For the last 30 years, resin-bonded fixed partial dentures (RFBDPs) have provided a conservative, medium-term restoration. Initially, these restorations failed through frequent debond but advancements in technology (treatment of the fitting surface and bonding techniques) have improved their predictability. Principles of design and abutment preparation have also evolved. Originally these restorations were retained purely through adhesion, but now minimal preparation of the abutment teeth may be undertaken to optimise mechanical resistance and retention forms. This facilitates delivery of a more predictable medium- to long-term restoration. An alternative approach to tooth preparation employs the Dahl technique, where restorative space is gained by cementing the restoration in hyperocclusion. Alternative materials such as ceramic, zirconia and fibre-reinforced composite resin have been explored for the retainers. While these alternatives show promise, they are not without their disadvantages and there is as yet no long-term data regarding their use for this application.

A brief history
The introduction of bonding by Buonocore in 1955 heralded new possibilities in dentistry. Adhesive technology means that more conservative preparation of the abutment teeth is possible than with cemented conventional restorations.
Rochette in 1973 introduced the concept of bonding a metal retainer to enamel using adhesive resin. His application was to splint periodontally involved mandibular anterior teeth using a cast gold bar bonded to the lingual surfaces of the teeth. The cast metal splint described had perforations to provide mechanical interlocking between the cement and the metal. His introductory article made reference to modifying the technique for application as an RBFPD. Today, this type of design with perforated retainers, as depicted in Figure 1, can be used to facilitate retrievability when an RBFPD is used as a provisional restoration.

Howe and Denehy modified this application to introduce the first form of RBFPD. Livaditis proposed abutment preparation, including reduction of proximal and lingual surfaces to create a path of insertion, along with occlusal rest seat preparation to resist tissueward displacement of the retainer. These modifications enhanced the retention and resistance forms of the metal retainer to the tooth. Attention then turned to treatment of the retainer’s fitting surface to increase the resin to metal bond strength. Livaditis and Thompson introduced the concept of electrolytically etching a non-precious metal to microscopically roughen the metal surface. Electrolytic etching works on the principle of selective dissolution of the most corrosion-sensitive phases of the metal. Mean tensile bond strengths of 27.3MPa for resin composite bonded to an electrolytically etched alloy were reported, which exceeded the bond found between resin and etched enamel (8.5-9.9MPa). While this was a step forward in design it was somewhat impractical in most general practice settings, given that this etching process is quite a sensitive technique, requires special laboratory equipment, and the restoration needs to be cemented immediately to avoid contamination. Further, the quality of etching depends on numerous factors including the type of casting alloy, type of acid etchant, acid concentration, etching time and electrical current density. A microscope is required to verify the quality of etching, which cannot be accurately assessed by visual inspection. Airborne particle abrasion with aluminium oxide was proposed as a more practical alternative to increase surface roughness. The equipment required is inexpensive and the surface alteration can be appraised visually (as shown in Figure 2) making it a more user-friendly and accessible method for general practice. Another method available is silicoating, which involves the fusion of a thin layer of silica (approx 0.5µ) to the metal fitting surface. This silica coating then reacts chemically with a silane coupling agent applied prior to application of the resin cement. Bond strengths reported for microabraded and silicoated surfaces are similar.

Common indications and contraindications for RBFPDs are listed in Table 1.

**Table 1: Indications and contraindications for RBFPD.**

<table>
<thead>
<tr>
<th>INDICATIONS</th>
<th>CONTRAINDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement of a single missing tooth</td>
<td>Unfavourable occlusal scheme</td>
</tr>
<tr>
<td>Periodontal splinting</td>
<td>Heavily restored abutment teeth</td>
</tr>
<tr>
<td>Fixed retention following orthodontic treatment</td>
<td>Mobile abutment teeth</td>
</tr>
<tr>
<td>Sound teeth adjacent to the open space</td>
<td>Diastema required between abutment and pontic</td>
</tr>
<tr>
<td>Excellent moisture control possible</td>
<td>Nickel allergy</td>
</tr>
</tbody>
</table>

**Abutment tooth selection when using a cantilever design**

The canine is the abutment tooth of choice when replacing a lateral incisor. It has a longer root over which to dissipate the increased forces when supporting an additional tooth as well as the overall length of the tooth, which maximises groove length. Further, retention is increased by a greater surface area for bonding, and the convexity of the palatal surface of the canine may increase rigidity independent of retainer thickness. Conversely, the lateral incisor lacks all these attributes because of its flatter, smaller size and thus is a weak abutment choice.

**Preparation design**

Schillingburg et al. defines retention and resistance as follows:
Retention prevents the removal of the restoration along the path of insertion or the long axis of the tooth preparation. Resistance prevents dislodgement of the restoration by forces directed in an apical or oblique direction and prevents any movement of the restoration under occlusal forces. Resistance form can be evaluated prior to cementation of the restoration. It optimises dissipation of forces and minimises dependence on the resin bond. Tooth preparation aims to create a definite outline form and path of insertion for the restoration, therefore optimising resistance and retention forms while minimising metal display or show through. Tooth reduction is conservative (remaining in enamel) for RBFPD preparation. This is one of numerous advantages of this restoration, as shown in Table 2.

**Anterior abutment tooth preparation**

The incisal finish line is conventionally 2mm short of the incisal edge to avoid any aesthetic impairment of incisal edge translucency (see Figure 3). This may vary and should be assessed clinically by moving a metal instrument from the cervical to the incisal of the tooth and assessing visibility from the facial aspect. This ensures good aesthetics from the facial aspect (Figure 5). Calcium hydroxide catalyst paste can be used to try in the retainer as it reproduces the white opaque shade of resins used to cement RBFPDs. A reduction of 0.5mm palatally will suffice to allow adequate bulk of metal for strength of the retainer while keeping the preparation in enamel. The gingival finish line ends 1mm supragingivally for optimal hygiene and thus tissue health, and further to maintain the preparation in enamel for optimal bonding. Keeping the preparation supragingival also facilitates the use of a rubber dam when cementing the restoration. Interproximally, the finish line ends at the centre of the contact area. This maximises wraparound while minimising visibility of metal from the facial aspect. The proximal surfaces of two abutments should be as parallel as possible to increase the retention form as well as reducing any negative space (black triangles). Proximal grooves compensate for the lack of proximal wraparound, which is limited by aesthetic requirements. The suggested proximal groove placement and

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**Table 2: Advantages and disadvantages of RBFPD.**

<table>
<thead>
<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal tooth preparation (0.5mm reduction, remaining in enamel)</td>
<td>Preparation (albeit minimal) of abutment tooth/teeth is required</td>
</tr>
<tr>
<td>Supragingival margins</td>
<td>Good alignment of abutment teeth required (Figure 4)</td>
</tr>
<tr>
<td>Reduced intraoral procedures (comparatively)</td>
<td>Rebond possible</td>
</tr>
</tbody>
</table>

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FIGURE 3: Two anterior three-unit RBFPDs placed following orthodontic treatment.

FIGURE 4: Ideal alignment of abutment teeth.

FIGURE 5: Two anterior three-unit RBFPDs in situ (from facial aspect).

FIGURE 6: Suggested preparation for anterior RBFPD.
Preparation of the abutment tooth serves two functions: restorative space is created; and, retention and resistance forms are greatly enhanced. Some authorities would favour greater coverage of the abutment tooth to increase adhesion over preparation of the abutment tooth as well as using the Dahl approach to create restorative space. The Dahl technique is an alternative approach where restorative space is gained by cementing the restoration in hyperocclusion. Dahl originally reported on this technique using a removable cobalt chromium splint 2mm thick to create restorative space on the palatal surfaces of maxillary anterior teeth that had experienced erosive wear. The splint was retained by buccal clasps on the canines and first premolars. For the purposes of measuring changes in the vertical dimension of the face, tantalum needles were implanted near the midline of the basal portions of the maxilla and mandible. Lateral cephalograms were taken at two, five and eight months, and interocclusal space was observed to increase up to eight months, when it became equivalent to the thickness of the splint. The initial article only reported on one patient; however, seven years later Dahl and Krogstad reported similar observations in a group of 20 patients. Cementing the restoration using this approach relies entirely on adhesive retention. The abutment tooth and its antagonist intrude to allow the remaining dentition to return to occlusal contact.

Posterior abutment tooth preparation
As with anterior preparations, the gingival finish lines terminate 1mm supragingivally for the same reasons as cited above. Enough enamel is removed lingually to eliminate the lingual bulge, but ensuring that the preparation remains in enamel. To optimise resistance form at least 180° wraparound of the preparation should be achieved. The interproximal finish lines terminate lingually to the facial line angles. Similar to the preparation for anterior abutments, rest seat preparations can be incorporated to prevent tissueward movement of the retainers. These are ideally placed mesially, distally and either mid-lingual or at the distopalatal groove to optimise axial loading of the abutment teeth. Alternatively the retainers can cover the occlusal surfaces of the abutment teeth, which maximises retention and resistance forms of the restoration as depicted in Figure 7. The proximal sections act as connectors as well as providing buccolingual bracing of the abutments. Interproximal grooves also increase retention of these restorations when used posteriorly. Alternatively, slot or box preparations that incorporate existing restorations can be utilised.

The Dahl approach

Preparation of the abutment tooth serves two functions: restorative space is created; and, retention and resistance forms are greatly enhanced. Some authorities would favour greater coverage of the abutment tooth to increase adhesion over preparation of the abutment tooth as well as using the Dahl approach to create restorative space. The Dahl technique is an alternative approach where restorative space is gained by cementing the restoration in hyperocclusion. Dahl originally reported on this technique using a removable cobalt chromium splint 2mm thick to create restorative space on the palatal surfaces of maxillary anterior teeth that had experienced erosive wear. The splint was retained by buccal clasps on the canines and first premolars. For the purposes of measuring changes in the vertical dimension of the face, tantalum needles were implanted near the midline of the basal portions of the maxilla and mandible. Lateral cephalograms were taken at two, five and eight months, and interocclusal space was observed to increase up to eight months, when it became equivalent to the thickness of the splint. The initial article only reported on one patient; however, seven years later Dahl and Krogstad reported similar observations in a group of 20 patients. Cementing the restoration using this approach relies entirely on adhesive retention. The abutment tooth and its antagonist intrude to allow the remaining dentition to return to occlusal contact.

Material selection
Rochette’s original paper used gold alloy. Knowledge has evolved since then and nickel chromium is now the alloy of choice for RBFPDs.
This is due to the greater bond strengths observed with base metals, as well as the strength of these metals in thin section. Retainers of cobalt chromium alloy should ideally be a minimum of 0.5mm thick. Ibrahim et al. found in vitro that increasing metal retainer thickness necessitated increasing force to dislodge the retainer. The authors concluded that using alloys with a high modulus of elasticity is beneficial along with a retainer thickness of ≥0.5mm. Base metals, despite their hardness, elastic modulus and superior sag resistance at elevated temperatures are more challenging to cast and pre-solder. The potential for nickel sensitivity must be borne in mind when selecting an alloy. Figure 9 shows a base metal framework prior to porcelain application.

All-ceramic RBFPDs were introduced in the early 1990s as a more aesthetic alternative to traditional RBFPDs. Kern conducted a prospective study to evaluate the clinical survival of all-ceramic (glass infiltrated alumina ceramic In-Ceram) RBFPDs with a cantilever design compared with conventional two-retainer design. Thirty-seven anterior RBFPDs were made with a mean observation time of 76±4.46 months for the two-retainer group and 52±4.17 months for the single-retainer group. There was a high fracture rate within the first years of clinical service, which the author attributes to movement differential between the abutment teeth during function. The study concluded that the cantilever design presented a promising alternative.

Fibre-reinforced composite (FRC) has been proposed as an alternative material for the retainer, citing advantages of better adhesion of the composite resin luting agent to the retainer, superior aesthetics and ease of repair. Glass fibres are commonly chosen for this purpose because of their strength and aesthetic qualities. Delamination and framework fracture are the most common modes of failure seen with this material. The wear properties of composite resin are inferior to those of ceramic and they will also discolour over time. Greater occlusal clearance is required (1-2mm), which poses a biological disadvantage for this choice. A multi-centre study looking at 52 patients who received 60 indirectly made FRC RBFPDs reported success rates of 45% and survival rates of 64% after five years of observation. The same group found a success rate of 71% and a survival rate of 78% after five years of observation of a group of 77 patients who had received 96 FRC RBFPDs in the posterior area of the mouth. A systematic review of the use of fibre reinforced polymer to replace missing teeth found very little good evidence to support its use. Most literature available was in the form of case reports; no randomised controlled trials are available, or any long-term cohort studies. The authors concluded that the use of fibre-reinforced polymer for fixed partial dentures must still be regarded as experimental.

Zirconia offers superior strength and fracture toughness, can be milled and is a more aesthetic alternative to traditional retainer materials (Figures 10 and 11). Certainly there is no doubt regarding the mechanical performance of zirconia (strength, fracture resistance and toughness); however, the main mode of failure of these restorations is still fracture of the veneering porcelain. Zirconia’s chemical inertness and glass-free composition means that acid etching and silanation is ineffective on its surface. A novel surface treatment (selective infiltration etching) emerged in 2006, which has been claimed to create a highly reactive surface. Using this protocol, the surface is coated with a glass infiltration agent and heated above its glass transition temperature. At this temperature, the molten glass allows for sliding and splitting of the surface grains. This creates nanoporosities where the adhesive resin can infiltrate and interlock. Bottino et al. report that a bond strength of 50-
55MPa can be achieved with this surface treatment. Findings from a recent in vitro study demonstrate that a better bond to zirconia can be achieved using a universal primer (Monobond) rather than conventional sliane with adhesive luting cement (Multilink). These findings, although promising, need to be verified in further studies and ideally reproduced in vivo. There are still unknowns in relation to using this material – longevity of restorations made from this material compared

**Bonding/cementation**

The original RBFPD frameworks were perforated to enhance mechanical retention of the cement to the framework. This had the disadvantage of the perforations weakening the framework strength, as well as leaving resin exposed to potential abrasion/leakage through exposure to the oral cavity.

The attachment complex consists of three separate parts:
- enamel to resin bond;
- cohesive bond of the composite resin; and,
- resin to framework bond.

Panavia EX was first introduced in 1984 and is capable of bonding cobalt chromium to enamel. It is based on bis-GMA resin and contains MDP (10-methacryloxydecyl dihydrogen phosphate). Hussey et al. in a clinical trial found the debond rate of RBFPD cemented with Panavia EX (16%) to be less than Comspan (45%). Panavia has a compressive strength of 200-300MPa while its tensile strength is 20-40MPa.

Livadiatis and Thompson demonstrated that the tensile bond strength of the resin-alloy interface is approximately two times that of the resin-enamel interface. 4-META (e.g., C&B Metabond, Parkell, USA) has been found to adhere strongly to smooth dental alloys, particularly non-precious metals. B-Guindy et al. found a superior bond strength with base metals over noble alloys. Oxidation of the metal increases the durability of the adhesion. While nickel and chromium are easily oxidised, nickel-chromium contains 8% copper and manganese, which inhibits oxide formation. Nitric acid successfully creates an oxide film on the surface of nickel-chromium. Tanaka et al. found the durability of 4-META applied to nickel-chromium extremely durable in an in vitro study. Thinner film thicknesses facilitate complete seating of the casting and minimises internal flaws in the cement. Diaz-Arnold et al. found 80µm created the highest metal to resin bond strength.

Air abrasion of the alloy surface with 50µ alumina prior to bonding roughens the surface and also provides a molecular coating of alumina. This alumina helps oxide bonding of phosphate-based adhesive systems (e.g., Panavia). Hussey et al. found in a longitudinal, prospective clinical study involving 400 adhesive bridges that the mean length of clinical service was the same for both etched and sandblasted bridges. Placing an RBFPD in a porcelain furnace at 480ºC for three minutes will remove any remaining resin without affecting the surface glazing of the porcelain.

Moisture control is essential to optimal bonding. Application of a rubber dam is the most predictable method of preventing contamination during cementation. This is not always practically feasible where the rubber dam may cover the margin or in fact cause pooling of saliva/gingival crevicular fluid in this area. Cotton wool isolation is an acceptable alternative where a rubber dam cannot be applied.

**Case selection**

**Occlusal considerations**

The RBFPD should be checked in maximum intercuspation (MIP) and dynamic excursions. The retainer should be in light contact in MIP even if the tooth was not in occlusion prior to RBFPD placement. The pontic should also be in light contact in maximum intercuspation but any contact in excursions eliminated. Some studies have reported a higher rate of debond of RBFPDs in patients with parafunctional activity. Where parafunctional activity is suspected, it would be prudent to prescribe a protective acrylic occlusal device (e.g., Michigan splint).

Cast metal retainers bonded to the lingual surfaces of anterior teeth are subject to varying forces during function. When the opposing teeth contact the retainer, they experience compressive and shear forces. When parts of the abutment tooth not covered by the retainer are contacted by the opposing teeth, tensile and shear forces are applied to the retainer. In the anterior region, tensile and shear forces are most destructive in causing the retainer to debond from the tooth; this is magnified in situations where there is a deep vertical overlap.

**Longevity/survival/success**

Partial or complete debonding should be monitored carefully at review appointments to intervene before caries develops or the prosthesis is swallowed, aspirated or lost. Creugers et al. found a survival rate of 75% for anterior and 44% for posterior bridges at 7.5-year follow-up. However, results of this study must be cautiously interpreted as survival was taken to mean that the bridge was still in situ, so caries or fracture of porcelain were not documented as failures. Hussey et al. reported on the performance of 400 RBFPDs placed between 1984 and 1989. The mean duration of service observed was 2.7 years. A high debond rate was reported, with 25% having debonded on at least one occasion. Preparation design was not standardised and surface alteration (electrolytic etching) was still an emerging treatment at this time, which is likely to account for this observation. A 13-year prospective follow-up study of 74 RBFPDs found a survival rate of 69% after 13 years. A total of 15 failures (20.3%) were observed; the main causes of failure reported were loss of retention, carious lesions and fractures of the veneering porcelain. Djemal et al. studied 832 RBFPDs and splints provided at a postgraduate teaching hospital and reported mean survival of seven years and 10 months with retainer design, area of coverage and operator experience associated with survival.

Pjetursson et al. conducted a systematic review of the survival and complication rates of resin-bonded bridges after an observation period of at least five years in 2008. The authors conclude that RBFPDs still debond relatively frequently, which can consume a lot of extra chairside time. The estimated survival rate after five years was 87.7%. They recommend further research with greater than 10-year observation periods to evaluate long-term outcomes in more detail.
Conclusions

While survival rates for RBFPDs remain lower than for conventional fixed partial dentures, they still have an important role to play in certain circumstances. The importance of careful case selection cannot be overemphasised. Preparation of abutment teeth as outlined in this article is to be strongly recommended, as it has been shown to increase retention and resistance forms and therefore yield higher success rates. Even with abutment tooth preparation, these restorations rely heavily on adhesive retention, so occlusal forces should be carefully controlled and night protection should be provided for patients with parafunctional activity. Reports of tooth-coloured RBFPD frameworks suggest that they may be a viable alternative, but long-term data of comparable duration to traditional cast metal RBFPDs is required for a true comparison. They may be of value in situations where metal retainers would be an aesthetic compromise.

References

Oral and overall health: clearing up the confusion

Précis

For several years dental researchers have been studying and reporting on links between oral and overall health, but study evidence often seems to offer conflicting information. This article aims to clear up that confusion.

After many initial studies suggested a strong association between periodontal disease and preterm low birth weight deliveries,1 an evidence-based review of all available intervention studies concluded that any potential interaction between these two conditions was minimal at best.2 More recently, an American Heart Association (AHA) review similarly suggested that the link between periodontal disease and atherosclerotic vascular disease (ASVD) may not be as robust as originally thought.3 The AHA concluded that “there is no evidence that periodontal intervention prevents ASVD or modifies its outcomes”. While admittedly contradictory, association studies support a strong link between periodontal disease and many systemic diseases, while intervention studies do not support a systemic benefit from periodontal therapy. Conflicting evidence has the potential to create confusion among practising clinicians concerning how to incorporate systemic health considerations into existing dental protocols. The intent of this article is to clear up that confusion.

Within the profession, conflicting evidence on the relationship between oral and overall health seems to be fuelling a developing struggle between those who believe that what happens in the mouth can affect the rest of the body and those who conclude that the most recent research dispels any notion that periodontal disease has systemic ramifications.4 One side is aggressively incorporating systemic disease risk management into their dental practices and suggesting to patients that adhering to treatment recommendations may also improve overall health. Meanwhile, those advocating an evidence-based approach opine that without stronger evidence no such claims should be made. Both groups are missing the point.

Why there is no ‘proof’

It should be no surprise that meta-analyses reveal that short-term mechanical bacterial removal alone does not result in dramatic alterations in the course of associated systemic diseases. The heterogeneity of the reviewed studies is vast. Meaningful combination of studies with different inclusion criteria is impossible.5 Moreover, a single treatment consisting of scaling and root planing alone (the sole intervention in most of the reviewed studies) produces little or no lasting improvement in a patient’s periodontal health. Long-term clinical studies have clearly demonstrated that the regular and effective removal of bacterial biofilms on the teeth is necessary to arrest periodontitis.6 Self-care instruction and reinforcement, follow-up monitoring and additional response-driven treatment is the standard therapy for periodontal disease. No conclusion concerning the strength of a periodontal–systemic disease link can or should be made until studies are designed that incorporate a more comprehensive and long-term approach to managing periodontal disease.

Perhaps periodontal disease should be viewed more broadly in terms of systemic...
inflammation, either as a consequence of an underlying hyperinflammatory trait or as a factor contributing to systemic inflammation. While bacteria initiate periodontal disease, it is the host’s inflammatory response to those bacteria that results in tissue destruction and potential systemic ramifications.\textsuperscript{7} Inflammation-based dissolution of connective tissue and the resultant loss of integrity of lining epithelium in the periodontal tissues open a portal of entry for periodontal bacteria, bacterial byproducts and the inflammatory mediators released in response to the pathogenic bacteria to gain entrance into the bloodstream.\textsuperscript{8} Periodontal bacteria and inflammatory mediators have repeatedly been shown to play a role in systemic disease initiation and progression.\textsuperscript{9} Despite the temptation to conclude otherwise, the lack of a demonstrable reduction in systemic disease following conventional anti-bacterial periodontal therapy does not necessarily mean that there is no relationship between oral and overall health. Rather, it may actually be a compelling reason to change our treatment approach to include addressing the host-driven inflammatory component of periodontal disease in addition to the initiating bacterial aetiology. Studying the effect that antibacterial and available host modulation therapies (aimed at reducing the inflammatory response)\textsuperscript{10,11} have on systemic diseases would provide far more useful information concerning the potential systemic benefit from periodontal therapy.

The interpretation of data linking periodontal and other diseases has other shortcomings. It will never be possible to ‘prove’ or quantify the extent to which systemic disease is influenced by periodontal disease/therapy until the inflammatory burden of oral origin can be quantified. Researchers can use surrogate measurements of systemic inflammation (such as C-reactive protein, etc.) to demonstrate potential benefits of periodontal therapy. However, it is currently not possible to determine how much of the overall systemic inflammatory burden is due to periodontal involvement. The number and/or depth of periodontal pockets are typically used to separate study subjects into different disease categories. Whether such measurements truly correlate with the degree of inflammation produced orally is far from certain. Without knowing the quality or quantity of the inflammatory response and/or bacteraemia introduced into the systemic circulation when different degrees of periodontal disease persist, determination of the strength or clinical significance of the link between periodontal disease and any associated systemic disease is simply not possible. The key question concerning the systemic health benefits of a life-long commitment to minimal oral inflammation management remains unasked and unanswered.

**What we can say for sure**

Research advocates who use the recent evidence-based reviews to bolster their opinion that periodontal therapy has no effect on systemic disease initiation or progression should reassess their position based on the inherent characteristics of the evidence-based methodology. Evidence-based healthcare depends on the application of the best knowledge a discipline can offer.\textsuperscript{12} Systematic reviews are considered the preferred method for identifying all of the available knowledge, determining which information is ‘best’ and summarising it in a clinically useful manner.\textsuperscript{13} The initial step of a systematic review is formulation of one or more clearly-defined key questions. Conclusions from the review should likewise be well defined relative to the key question.

As such, it is misleading to conclude from the recent meta-analyses that “periodontal therapy” has not been shown to have any significant systemic effect. The evidence-based approach requires that the type of therapy provided in the studies be better defined. For example, a more descriptive conclusion would be that “limited episodes of subgingival debridement without any host modulation” have not been shown to affect the studied systemic disease. While the current evidence is not yet sufficient to definitely conclude that oral health should be an integral part of preventive cardiology, pre-term low birth weight risk reduction, diabetes management or part of the management strategy for any inflammatory disease, the potential systemic benefit of maintaining optimal oral health should not be ignored. Although the published conclusion in the AHA statement suggests that any cardio-protective effects following periodontal therapy is minimal at best, the statement itself acknowledges the role that inflammatory mediators play in the development and/or progression of many chronic diseases. Contained in the statement is a summary of the systematic review of relevant evidence that confirms that the mouth is a source of the exact same mediators of inflammation when periodontal disease persists.\textsuperscript{14}

Optimising diet, exercise, blood pressure and stress level would certainly be on any list of well-accepted health promoting behaviours. It seems reasonable (and from a public health standpoint potentially important) to add to the list a regular devotion to determining if any oral inflammation is present, and a commitment to taking the necessary steps to maximise the chance of keeping that inflammation at bay.

More simply put, it seems prudent and certainly within the realm of the evidence-based methodology to advise patients presenting for dental care that inflammation is an important factor in the development of many serious diseases, and then educate them that the mouth is a significant source of inflammation when periodontal diseases persist.

**Conclusions**

- A plethora of articles assesses the periodontal and systemic disease connection. Of these a large majority point to a connection, but it is not a causal relationship. Does this mean there is no connection? We still do not know.

- Even though we are presented with a lot of biased, poorly executed research, it is still valid to inform patients that periodontal disease and oral inflammation can lead to increased systemic inflammation. Whether this causes cardiovascular disease, preterm low birth weight, or diabetes, etc., is still to be elucidated, but the fact is that prevention of oral inflammation is still important for oral health.

- What do I tell my patients? If they want to prevent oral disease
then they should see a dentist every six months, and brush and floss their teeth daily. With respect to systemic disease, I say that there is some evidence, while not conclusive, that oral inflammation may lead to an increased risk of systemic inflammation and also increased risk of a number of chronic inflammatory diseases.

References
Organisational engagement: an examination of members’ engagement in the Irish Dental Association

Précis
Differences in perceptions of the IDA are evident due to gender, practice type, loyalty and satisfaction. Members identified factors inhibiting and facilitating engagement in the Association.

Abstract
Statement of the problem: Many members in the IDA are not actively involved in the Association. Therefore, despite representation being a key function of the IDA, members are not equally represented in the Association.
Purpose of the study: This study aimed to examine IDA members’ views, with a view to identifying changes that might enhance the members’ active engagement.
Materials and methods: A self-report questionnaire was developed following an analysis of interviews and a focus group with IDA members. The IDA distributed the questionnaire to its members by email.
Results: Survey participants (N=240) consisted of 128 male IDA members, 79 female IDA members, and 33 participants who did not report their gender. Analysis yielded differences in terms of perceptions of the IDA due to gender, practice type, loyalty and satisfaction. Key inhibitors of engagement identified include: communication barriers; family commitments; feeling as though time spent involved is unproductive; and, the perception of an old boys’ club. Key facilitators of engagement identified include: representation; continuing professional development (CPD); social interaction; and, support.
Conclusions: While differences in terms of perceptions of the IDA were observed in the analysis of gender and practice type, the most profound differences were observed between loyal and less loyal participants, and between satisfied and dissatisfied participants. Loyal and satisfied participants were generally more positive about all aspects of the IDA than less loyal and dissatisfied participants. The IDA should target inhibitors of engagement as identified by less loyal and dissatisfied members. It may be useful to firstly address communication barriers in the IDA in an attempt to increase membership engagement.

Introduction
Levels of employee/membership engagement have been found to have significant consequences for both individuals and organisations; job satisfaction, autonomy and organisational success have all been linked to this construct. The Irish Dental Association (IDA) seems to be witnessing a lack of engagement among many of its members; only 42% of
current/lapsed members reported active involvement in the IDA, with only 19% of members reporting an interest in future involvement. In addition, current engagement patterns are not indicative of membership; members are not equally represented at committee and group level in terms of gender, geographical location, professional status or age. Given that the number one reason for the belief that the IDA could meet future challenges was reported by members as being proactive and progressive members, and that members have identified representation as a key reason for joining the Association, there is a need to identify the roots of this problem and to change the current engagement pattern.

In order to create change in an organisation, an understanding of the collective thought processes informing behaviour needs to be achieved; this suggests that bi-directional communication is required for organisational change. Bi-directional communication is often complicated by the existence of subcultures in organisations. Various subcultures exist in the IDA in terms of geographical location, gender and practice type. Furthermore, the dental profession is rapidly becoming more feminised; in 2008, 33% of registered dentists were female, versus 60% of those who graduated from dentistry in Ireland in the same year. As profiles within an organisation change, so might collective thought processes. For instance, different gender norms have been documented in dentistry – women tend to work fewer hours than men and are more likely to work in public practice than private practice. In addition, research suggests that male dental students are more motivated by self-employment and business-related factors, while female dental students are more motivated by people-oriented motives. Female dentists are also more likely to take career breaks and plan to retire earlier than their male counterparts. However, one cannot generalise across organisational cultures. If cultural transformation is to improve the efficacy of a service (or, in the present study, to increase engagement in an organisation), then participants must be asked what such terms mean to them; it cannot be assumed that such definitions are known or that each participant would define such terms in the same way. Literature suggests that change is not easily brought about by top-down demands – the motivations, needs and fears of members at all levels must be considered. Thus, the present study aims to investigate the views of both male and female dentists in terms of engagement in the IDA, with a view to understanding what needs to change in order to enhance the active involvement of members. This study will be carried out using a mixed methods approach. Differences in perceptions of the IDA will be examined in terms of gender, practice type, loyalty and satisfaction.

Method

Interviews and a focus group were carried out with nine IDA members and one member of the management team at IDA House. The purpose of this was to get a general overview of the issues surrounding engagement in the IDA, from as representative a sample as possible. From the analysis of the interviews and focus group, a self-report questionnaire was developed, which incorporated the central themes that had arisen in order to see whether or not these themes would be confirmed by the majority of IDA members, and to assess whether or not there were any key issues surrounding engagement that had not been previously mentioned by participants. The survey included a section on demographic information (16 items), in addition to the following 13 scales:

- Information flow (four items, e.g., “I get enough information I need from the IDA to be a good practitioner”);
- Teamwork (six items, e.g., “the people on Board/Council are concerned about each other”);
- Meetings (five items, e.g., “decisions made at meetings [branch, subcommittee or others] get put into action”);
- Morale (eight items, e.g., “the IDA respects its members”);
- Organisational culture (25 items – the total score for information flow, teamwork, meetings and morale);
- Involvement (two items: “I have been asked to be involved in IDA committees or groups”);
- Identification with the IDA (eight items, e.g., “I am proud to be a member of the IDA” – all items on the above-mentioned scales were answered on a five-point scale from “strongly agree” to “strongly disagree”);
- Work-life balance (five items, e.g., “the demands of work interfere with my home, family or social life” – all items answered on a four-point scale from “never” to “almost always”);
- Perceptions of the IDA – barriers (15 items: “hierarchy is very ineffective”);
- Perceptions of change (15 items, e.g., “involve more women in the running of the IDA” – all items answered on a three-point scale from “definite need to change” to “no need to change”);
- Perceptions of meetings in the IDA (six items, e.g., “most meetings are a waste of time” – four items answered on a five-point scale from “strongly agree” to “strongly disagree” and two items answered on a five-point scale from “very effective” to “very ineffective”);
- Overall satisfaction with the IDA (30 items, e.g., “support for new graduates” – all items answered on a five-point scale from “very satisfied” to “very dissatisfied”); and,
- Training (eight items, e.g., “business training for dentists” – all items answered on a four-point scale from “yes definitely” to “don’t know”).

In total, there were 128 items in the survey.

Having obtained consent from the appropriate ethics board (TMREC-SPsy, Ethics Reference number: 20117), a pilot study was carried out for the quantitative questionnaire using four participants who were not used in the actual study. The pilot study confirmed that participants understood the questions that they were being asked and identified necessary changes to the survey. Additionally, the pilot provided an estimation of the time required to complete the questionnaire. Researchers created a web link to the survey using the “Survey
### Results

#### Comparison of qualitative and quantitative themes

All items in the IDA survey (apart from demographic items) were subjected to PCA. The purpose of this analysis was to assess whether or not the themes that arose in the qualitative data (the interviews and focus group) would also be identified in the quantitative data (the survey). PCA revealed seven components/themes that corresponded with the themes that had emerged from the qualitative data. Thus, using two different methods, similar results were observed (Table 1).

#### Examination of differences between participants with regard to gender, practice type, satisfaction and loyalty

A series of analyses (a two-way ANOVA and independent t-tests) were carried out to examine differences between groups. Only significant results will be presented in this paper.

### Gender differences

#### Perceptions of the IDA - barriers

T-test analyses observed gender differences with respect to perceptions of barriers in the IDA (Table 2). As the mean scores in Table 2 indicate, many of the differences observed between males and females lay in the extent of agreement/disagreement, i.e., both males and females responded to items in the same direction but one group agreed/disagreed significantly more so than the other group.

#### Practice type differences

There were three groups of participants with regards to type of practice – public practice (HSE: 11.7%), private practice (71.3%) and other public service (2.5%). The study aimed to assess these groups, as far as possible, in equal measure, so that they could be compared. Thus, due to the small proportion of participants reporting to be in other public service, this group was removed from the analysis so as not to skew results. Private practice participants (109 males and 55 females) and public practice participants (eight males and 20 females) remained.

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**Table 1: Comparison of themes emerging from interviews and focus group with factors from factor analyses of survey.**

<table>
<thead>
<tr>
<th>Themes from qualitative data</th>
<th>Factors from factor analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group dynamics</td>
<td>INVOLVEMENT</td>
</tr>
<tr>
<td>Communication</td>
<td>1. Integrity of the Board/Council</td>
</tr>
<tr>
<td>Perception of meetings</td>
<td>2. Collegiality and respect</td>
</tr>
<tr>
<td>Structure of meetings</td>
<td>3. Involvement in decision making</td>
</tr>
<tr>
<td>Perception of the weight of one's contribution in the IDA</td>
<td>4. Being kept in the picture</td>
</tr>
<tr>
<td>Need for the IDA to cater to membership profile</td>
<td>5. Efficacy of IDA meetings</td>
</tr>
<tr>
<td>Inclusion of women</td>
<td>CHANGE</td>
</tr>
<tr>
<td>Inclusion of students/young graduates</td>
<td>1. Consultation with members</td>
</tr>
<tr>
<td>Devolving the IDA outside of Dublin</td>
<td>2. Decentralising functions to regions</td>
</tr>
<tr>
<td>Representation</td>
<td>3. Services based on member needs</td>
</tr>
<tr>
<td>Communication</td>
<td>4. Involvement of recent graduates and women</td>
</tr>
<tr>
<td>Incentives</td>
<td>SATISFACTION</td>
</tr>
<tr>
<td>Training</td>
<td>1. Support and services for members</td>
</tr>
<tr>
<td>Education</td>
<td>2. Advocacy and representation</td>
</tr>
<tr>
<td>Support</td>
<td>3. Quality of CPD and scientific information</td>
</tr>
<tr>
<td>Financial advice</td>
<td>4. Efficacy of scientific and social events</td>
</tr>
<tr>
<td>Representation</td>
<td>5. Practice support</td>
</tr>
<tr>
<td>Provision of professional information</td>
<td>6. Engaging members in decision making</td>
</tr>
<tr>
<td>Emphasis of IDA services</td>
<td></td>
</tr>
<tr>
<td>CPD</td>
<td></td>
</tr>
<tr>
<td>Perception of the weight of one's contribution in the IDA</td>
<td></td>
</tr>
<tr>
<td>Personal satisfaction/development</td>
<td></td>
</tr>
<tr>
<td>Time commitment</td>
<td></td>
</tr>
<tr>
<td>Importance of social aspects in the IDA</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>TRAINING</td>
</tr>
<tr>
<td>Education</td>
<td>1. Business skills</td>
</tr>
<tr>
<td>Financial advice</td>
<td>2. Meeting and communication skills</td>
</tr>
<tr>
<td>Mentoring</td>
<td></td>
</tr>
<tr>
<td>Work-life balance</td>
<td>WORK-LIFE BALANCE</td>
</tr>
<tr>
<td>Family as priority</td>
<td>1. Work-family imbalance</td>
</tr>
<tr>
<td>Time commitment</td>
<td>2. Workload</td>
</tr>
<tr>
<td>Hierarchy</td>
<td>BARRIERS</td>
</tr>
<tr>
<td>Communication</td>
<td>1. One-way communication</td>
</tr>
<tr>
<td>Devolving the IDA outside of Dublin</td>
<td>2. Dublin-based inner circle</td>
</tr>
<tr>
<td>Economic factors</td>
<td>3. Private practice bias</td>
</tr>
<tr>
<td>Work-life balance</td>
<td>4. Family issues</td>
</tr>
<tr>
<td>Representation</td>
<td>5. Public focus and</td>
</tr>
<tr>
<td>Public relations</td>
<td>representative function</td>
</tr>
</tbody>
</table>

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Monkey® online software tool. The IDA emailed the survey link to 1,237 of its members on April 17, 2012. Two reminder emails were sent out by the IDA (one approximately two weeks later, and the other approximately four weeks later) to encourage members to complete the survey if they had not already done so. After six weeks the survey was closed. At this point, 240 participants had responded out of the 1,237 members that had been emailed – a 19.4% response rate. One hundred and twenty eight participants were male and 79 participants were female; 33 did not report their gender.

Survey data was analysed using SPSS software. Having assessed the demographic information of participants and the reliabilities of each of the survey scales (which all had a Cronbach’s alpha coefficient above 0.7 and therefore were deemed reliable), principal component analysis (PCA), Pearson’s r correlations, a one-way non-repeated ANOVA, and a series of one-way independent t-tests were carried out to address the research aims.
Training

A two-way non-repeated ANOVA revealed a significant interaction between practice type and gender on need for training in the IDA (F(1,188) =9.991; p<0.05). In order to locate the source of this disordinal interaction, tests of simple effects (TOSE) were conducted.

Analysis revealed that female participants in private practice reported the greatest need for training, followed by male participants in public practice, then followed by male participants in private practice and finally by female participants in public practice. On the whole, those in private practice reported a greater need for training than did those in public practice, and male participants reported a greater need for training than did female participants. This appears to be in line with themes that arose in the qualitative analysis – that males need the IDA to counteract isolation in their work. Training may be viewed as both informative and social by this group (Table 3).

**TABLE 3:** Summary ANOVA table for significant interaction between practice type and gender with regard to training scale.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>Df</th>
<th>MS</th>
<th>F</th>
<th>FCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice type</td>
<td>18.710</td>
<td>1</td>
<td>18.710</td>
<td>2.523</td>
<td>3.920</td>
</tr>
<tr>
<td>Public v private male</td>
<td>385205.1</td>
<td>1</td>
<td>385205.1</td>
<td>51935.43</td>
<td>5.152</td>
</tr>
<tr>
<td>Public v private female</td>
<td>214.2</td>
<td>1</td>
<td>214.2</td>
<td>28.87</td>
<td>5.152</td>
</tr>
<tr>
<td>Gender</td>
<td>8.710</td>
<td>1</td>
<td>8.710</td>
<td>1.174</td>
<td>3.920</td>
</tr>
<tr>
<td>Male v female public</td>
<td>38.63</td>
<td>1</td>
<td>38.63</td>
<td>5.208</td>
<td>5.152</td>
</tr>
<tr>
<td>Male v female private</td>
<td>32986.91</td>
<td>1</td>
<td>32986.91</td>
<td>447.47</td>
<td>5.152</td>
</tr>
<tr>
<td>Interaction</td>
<td>74.104</td>
<td>1</td>
<td>74.104</td>
<td>9.991</td>
<td>3.920</td>
</tr>
<tr>
<td>Error</td>
<td>1394.399</td>
<td>188</td>
<td>7.417</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**TABLE 2:** Significant gender differences observed with regard to the perception of the IDA - barriers scale.

<table>
<thead>
<tr>
<th>Item*</th>
<th>Means</th>
<th>Df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>The IDA is really just a boys’ club</td>
<td>2.57 (127)</td>
<td>2.96 (79)</td>
<td>204</td>
</tr>
<tr>
<td>There are too few women involved in the running of the IDA</td>
<td>3.29 (126)</td>
<td>3.65 (78)</td>
<td>202</td>
</tr>
<tr>
<td>Having a family makes it harder for me to attend committee meetings and CPD events</td>
<td>3.34 (123)</td>
<td>3.86 (78)</td>
<td>178.09</td>
</tr>
<tr>
<td>The AGM caters more for the interests of private practice dentists</td>
<td>3.07 (125)</td>
<td>3.37 (78)</td>
<td>201</td>
</tr>
<tr>
<td>The IDA is biased towards private practice</td>
<td>2.80 (125)</td>
<td>3.24 (78)</td>
<td>201</td>
</tr>
<tr>
<td>The IDA should use its budget for media campaigns on the importance of dentistry for overall health</td>
<td>3.74 (125)</td>
<td>4.06 (79)</td>
<td>188.52</td>
</tr>
</tbody>
</table>

*scoring: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree.

**TABLE 4:** Significant differences observed between public practice IDA members and private practice IDA members with regard to work–life balance items and items on the perceptions of the IDA - barriers scale.*

<table>
<thead>
<tr>
<th>Work–life balance item:*</th>
<th>Public (N)</th>
<th>Private (N)</th>
<th>Df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have more to do than I can handle comfortably</td>
<td>2.64 (28)</td>
<td>2.14 (170)</td>
<td>34.37</td>
<td>-2.74</td>
</tr>
<tr>
<td>I always seem to be serving someone else's agenda</td>
<td>2.50 (28)</td>
<td>2.11 (171)</td>
<td>197</td>
<td>-2.531</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceptions of the IDA - barriers item:**</th>
<th>Public (N)</th>
<th>Private (N)</th>
<th>Df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having a family makes it harder for me to attend committee meetings and CPD events</td>
<td>3.96 (27)</td>
<td>3.48 (166)</td>
<td>191</td>
<td>-2.43</td>
</tr>
<tr>
<td>General practice is not represented in the IDA</td>
<td>1.57 (28)</td>
<td>2.19 (167)</td>
<td>193</td>
<td>3.22</td>
</tr>
<tr>
<td>The AGM caters more for the interests of private practice dentists</td>
<td>3.82 (28)</td>
<td>3.06 (168)</td>
<td>194</td>
<td>-4.40</td>
</tr>
<tr>
<td>The IDA is biased towards private practice</td>
<td>3.70 (27)</td>
<td>2.82 (169)</td>
<td>30.50</td>
<td>-3.76</td>
</tr>
<tr>
<td>The IDA needs to be involved more in advocacy</td>
<td>3.89 (28)</td>
<td>3.49 (164)</td>
<td>190</td>
<td>-2.55</td>
</tr>
</tbody>
</table>

*scoring: 1=never, 2=some of the time, 3=a lot of the time, 4=almost always.

**scoring: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree.
In terms of work–life balance, t-tests revealed that although both public practice and private practice participants reported having “more to do than they can handle comfortably” and that they “always seem to be serving someone else’s agenda”, those in public practice did so more often than did private practice participants (Table 4).

Perceptions of the IDA – barriers
T-test analyses found significant differences between public practice participants and private practice participants with respect to the five barriers listed in Table 4. With the exception of the item “the IDA is biased towards private practice”, differences here lay in the extent of agreement/disagreement (i.e., both public practice and private practice participants responded in the same direction).

Differences with regard to satisfaction and loyalty

Frequency analysis
The majority of participants reported being loyal to the IDA (67.1%, n=161) as opposed to being less loyal to the IDA (28.3%, n=68). Similarly, the majority of participants reported being satisfied with the IDA (56.7%, n=136), as opposed to being dissatisfied with the IDA (29.2%, n=70).

T-tests revealed significant differences between satisfied and dissatisfied participants for each of the totalled scales apart from training. Examination of the means shows that, apart from the perceptions of change scale, satisfied participants scored higher than did dissatisfied participants on all of these scales. Higher scores are indicative of more positive perceptions of the given scale.

Work–life balance

Significant differences were observed between groups with respect to “the demands of work interfere with my home, family or social life”, “my work life has a negative impact on my family or social life”, “I have a good balance between my job and my family life” and “I always seem to be serving someone else’s agenda”. Examination of the mean scores indicates that both groups responded in a similar range – between two (“some of the time”) and three (“a lot of the time”).

Involvement
T-test analyses reveal significant differences between groups with respect to both “I have been asked to be involved in IDA committees or groups”, and “I have a say in the decision making in the IDA”, as illustrated in Table 5. Looking to the means, satisfied participants had

### TABLE 5: Significant differences observed between satisfied participants and less satisfied participants with regard to totalled scales and subscales, work–life balance items and involvement items.

<table>
<thead>
<tr>
<th>Totalled scale/subscale:*</th>
<th>Satisfied (N)</th>
<th>Dissatisfied (N)</th>
<th>Df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information flow</td>
<td>14.88 (133)</td>
<td>11.79 (66)</td>
<td>197</td>
<td>9.85</td>
</tr>
<tr>
<td>Meetings</td>
<td>16.34 (120)</td>
<td>13.46 (61)</td>
<td>162.72</td>
<td>5.44</td>
</tr>
<tr>
<td>Teamwork</td>
<td>21.71 (118)</td>
<td>17.11 (54)</td>
<td>170</td>
<td>7.95</td>
</tr>
<tr>
<td>Morale</td>
<td>29.39 (120)</td>
<td>20.80 (56)</td>
<td>174</td>
<td>11.57</td>
</tr>
<tr>
<td>Organisational culture</td>
<td>82.38 (105)</td>
<td>63.90 (48)</td>
<td>151</td>
<td>9.91</td>
</tr>
<tr>
<td>Identification with the IDA</td>
<td>27.39 (128)</td>
<td>21.04 (68)</td>
<td>194</td>
<td>11.21</td>
</tr>
<tr>
<td>Perceptions of change</td>
<td>30.17 (121)</td>
<td>33.86 (56)</td>
<td>175</td>
<td>-4.536</td>
</tr>
<tr>
<td>Satisfaction with the IDA</td>
<td>1.88 (136)</td>
<td>1.37 (70)</td>
<td>157</td>
<td>10.59</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work–life balance item:**</th>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>The demands of work interfere with my home, family or social life</td>
<td>2.32 (136) 2.56 (70) 122.38 -2.12</td>
</tr>
<tr>
<td>My work life has a negative impact on my family or social life</td>
<td>2.07 (135) 2.36 (70) 106.30 -2.34</td>
</tr>
<tr>
<td>I have a good balance between my job and my family life</td>
<td>2.81 (136) 2.54 (70) 204 2.10</td>
</tr>
<tr>
<td>I always seem to be serving someone else’s agenda</td>
<td>2.04 (136) 2.40 (70) 113.91 -2.97</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Involvement item:**</th>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a say in the decision making in the IDA</td>
<td>2.83 (133) 1.88 (69) 200 6.73</td>
</tr>
<tr>
<td>I have been asked to be involved in committees or groups</td>
<td>2.94 (135) 2.38 (68) 201 2.70</td>
</tr>
</tbody>
</table>

**higher scores are indicative of a more positive perception/greater agreement on a given scale, e.g., higher scores on morale indicate that morale is perceived to be higher, higher scores on organisational culture indicate a more positive view of the culture in the IDA, and higher scores on perceptions of change indicate a greater perceived need for change in the IDA.

***1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree.
Perceptions of the IDA – barriers

T-test analyses found significant differences between satisfied and dissatisfied participants with respect to nine barrier items (Table 6). Examination of the means show that on some of these items the differences observed lay in the extent of agreement/disagreement – both satisfied and dissatisfied participants responded in the same direction.

Perceptions of meetings

Significant differences between groups were observed with respect to all items on the perceptions of meetings scale. Examination of the mean scores indicates that both satisfied and dissatisfied participants responded to each of these items in the same direction; differences observed lie in the extent of agreement/disagreement.

Differences with regard to loyalty

Analyses revealed very similar differences between loyal and less loyal participants as those observed between satisfied and dissatisfied participants, with loyal participants generally reporting more positive perceptions on each of the scales than less loyal participants. Thus, these results will not be presented here.

Discussion

Research aims and results

This study aimed to identify the factors facilitating and inhibiting engagement in the IDA. In order to achieve this, researchers examined differences between IDA members in terms of gender, practice type, satisfaction and loyalty with regard to various aspects of the Association. The ultimate objective of the current study was to identify possible changes the IDA could make in order to enhance membership engagement.

Factors identified as inhibitors of engagement in the qualitative analyses include: poor communication between the IDA and its members; perceptions of an old boys’ club; members feeling too intimidated to become involved; gender differences; time commitment; family commitments; and, feeling that time spent involved is wasted and that meetings are badly run. Factors identified as facilitators of engagement in the qualitative analyses were: the role of the IDA in representation; social events in the IDA; support from the IDA; provision of information about dentistry; educational opportunities and, CPD.

Analysis found that loyal and satisfied participants reported more positively in terms of information flow, meetings, teamwork, morale and satisfaction, some of the work-life balance items, and the...
involvement items, than did less loyal and dissatisfied participants. Both less loyal and dissatisfied participants reported that they had not been asked to be involved in the IDA. Few differences were observed in terms of gender and practice type. However, males and private practice participants wanted training more so than females and public practice participants. Female participants reported that the IDA is biased towards private practice, whereas male participants did not agree. Similarly, public practice participants reported that the IDA is biased towards private practice while private practice participants disagreed. Public practice participants also reported more negatively in terms of work-life balance than private practice participants. Perceptions of barriers observed confirmed qualitative data observations – key barriers identified include communication issues, hierarchy, having too few women in the IDA, family commitments and perceptions of biases in the IDA.

Results in light of previous literature
Both less loyal and dissatisfied participants indicated that they had not been asked to be involved in the IDA. Much of the previous research on engagement identifies factors such as being involved in decision making, having a sense of significance, having one’s opinion heard and being attended to as a unique individual as key antecedents to engagement.\(^2,10\) If members of the IDA are not being asked to get involved, additional opportunities for these antecedents to occur are very limited and thus, this is a barrier that needs to be addressed.

Although few gender differences were identified in the current study, the differences that were observed are consistent with previous literature. For instance, the current study found that female participants disagreed significantly less than males with the item “the IDA is really just a boys’ club”. Given that more males are currently involved in the IDA than females,\(^3\) a perception of an old boys’ club may be attributed to ‘cross-cultural’ communication differences between men and women.\(^11\)

As women are more likely to work in public practice while men are more likely to work in private practice,\(^3\) findings that female participants and public practice participants agreed that the IDA is biased towards private practice, while male participants and private practice participants disagreed, that females and public practice participants agreed more than males and private practice participants with the item “the AGM caters more for the interests of private practice dentists”, and that private practice participants but not public practice participants felt that general practice is not represented in the IDA, are indicative of potential biases in the data. Thus, these results must be interpreted cautiously.

Research that has highlighted representation as a key driver for IDA recruitment\(^3\) is supported by findings that both male and female participants (females more so) want more women involved in the running of the IDA, and that both public practice and private practice participants (public practice more so) want the IDA to be more involved in advocacy. Furthermore, previous research identified the improvement of public relations as one of the top two most wanted improvements in the IDA\(^2\) – the current study found that both male and female participants (females more so) thought the IDA should use its budget for media campaigns on the importance of dentistry for overall health.

In terms of work-life balance, it may be the case that gender differences are less pronounced than the literature suggests.\(^12\) Although females agreed more than males that having a family makes it harder to attend meetings and CPD events, male participants also agreed with this item, regardless of practice type (although public practice participants agreed more than private practice participants). Thus it would seem that family commitments pose a barrier to involvement for IDA membership in general, rather than for a particular group (namely females).

Findings from qualitative analysis are supported by the finding that male participants reported to want training more so than did females. Interview data suggested that male members value and need the social aspects of the IDA more than females do. Thus, the fact that training is also an opportunity to meet and socialise with colleagues may explain this gender difference. It is interesting that within public practice (which is dominated by females), males reported a greater need for training, while in private practice (which is dominated by males), females reported a greater need for training. Perhaps communication differences between men and women\(^11\) render the ‘minority’ gender in a given practice type feeling somewhat inferior and thus, wanting more training. Of course, it could also be argued that once again training is viewed as a means of social interaction and that the ‘minority’ gender in a given practice type sees it as an opportunity to meet more same sex colleagues.

Communication as a barrier is another finding from the survey, which supported the data from the interviews and focus group. Neither loyal nor less loyal participants agreed that there is bottom-up communication in the IDA; less loyal and dissatisfied participants agreed that communication is all top-down and disagreed that the IDA is good at listening to the needs of its members. In addition, dissatisfied and less loyal participants agreed that the IDA is just a boys’ club and that decisions are made by the ‘Dublin brigade’ – it may be that these participants do not feel as though they are making a contribution to the IDA, which analysis of the qualitative data found to be of importance for engagement. Finally, it should be noted that both satisfied and dissatisfied participants agreed that there are too few women involved in the running of the IDA. This reflects themes from the qualitative analysis, which highlighted the need for the IDA to cater to its membership profile; participants emphasised the need to better facilitate women and young graduates in the Association.

With regard to meetings, results from the survey are not in line with the interview and focus group data. Survey participants agreed that meeting preparation and the chairing of meetings is effective, that work gets done at meetings and that work is the priority at meetings, and disagreed that most meetings are a waste of time and that meetings tend to be more about socialising than about getting the work done. Although there were differences observed between loyal and less loyal participants, as well as between satisfied and dissatisfied participants, these differences lay in the extent of the agreement – all
groups agreed on the direction of the item (whether in agreement or disagreement). Qualitative analysis, on the other hand, observed that meetings are unproductive, are poorly run and take up too much time. Thus negative perceptions of meetings in the qualitative data cannot be generalised across IDA members.

**Methodological strengths and weaknesses**

A key strength of this study is the mixed methods approach used. A mixed methods approach combines the strengths of both qualitative and quantitative analyses. Another strength of the current study lies in the strong reliabilities observed on each of the survey scales. This allows researchers to be confident that scales measured what they were intended to measure. In addition, a cultural, bottom-up approach was used. Literature suggests that organisational culture allows for the engagement of an organisation on a level of meaning – it was the members of the Association themselves who determined the results of the study.

However, the unequal sizes of groups being compared (e.g., there were many more male participants than female participants) may limit just how far results can be generalised. In addition, all data collected in the current study was based on self-report, thus both intentional and unintentional distortions are possible. Likert type measures (as used in the survey) may lead to inaccurate spontaneous answers, if the participant is not sure of their response and feels under pressure to come up with an answer.

**Suggestions for change**

Themes identified in this study suggest that interaction between members greatly influences culture in the IDA. Communication was identified as a barrier to engagement throughout this study (in interviews, the focus group and the survey). It has been suggested that bi-directional communication is necessary for organisational change.

Thus, in an effort to increase membership engagement, communication could be the most important issue to address in the IDA. A number of small changes could be made to enhance communication, for example, emphasising the services available to IDA members, asking members directly to get involved in the Association, actively trying to recruit female members and young graduates, acknowledging the contribution of engaged members, offering communication training for members, increasing public awareness of the IDA and how to enhance engagement, as conceived by members themselves. Communication was identified as the area to focus on, firstly with regard to adjusting the culture in the IDA so that engagement can be better facilitated.

Future research should address the methodological weaknesses described above and examine engagement in other dental associations or in similar associations so that more comparative analyses in this area of research could be made.

**References**

Treatment outcome of mineral trioxide aggregate: repair of root perforations


Introduction
The use of biocompatible materials like mineral trioxide aggregate (MTA) may improve the prognosis of teeth with root perforations.

Methods
The treatment outcome of root perforations repaired between 2000 and 2006 with MTA was investigated. Twenty-six patients received treatment with MTA in 26 teeth with root perforations. Treatment was performed by supervised undergraduate students (29%), general dentists (52%), or dentists who had focused on endodontics (19%). Perforation repair by all treatment providers was performed using a dental operating microscope. Calibrated examiners assessed clinical and radiographic outcome 12 to 65 months after treatment (median 33 months, 81% recall rate). Pre-, intra-, and postoperative information relating to potential prognostic factors was evaluated.

Results
Of 21 teeth examined, 18 (86%) were classified as healed. None of the analysed potential prognostic factors had a significant effect on the outcome.

Conclusions
MTA appears to provide a biocompatible and long-term effective seal for root perforations in all parts of the root.


The effects of periodontal curette handle weight and diameter on arm pain: a four-month randomised controlled trial

Rempel, D., Lee, D.L., Dawson, K., Loomer, P.

Background
The design of periodontal curette handles may cause or aggravate arm pain in dental practitioners. The authors conducted a four-month randomised controlled trial to evaluate the effects of curette handle diameter and weight on arm pain among dental hygienists and dentists.

Methods
One hundred and ten dental hygienists and dentists who performed scaling, root planing or dental prophylaxis procedures participated in this study. The authors assessed right wrist/hand, elbow/forearm and shoulder pain levels weekly. They randomised participants to receive either a set of light (14g) periodontal curettes with a large diameter (11mm) or a set of heavy (34g) periodontal curettes with a narrow diameter (8mm). The authors compared changes in mean pain scores across the study period between intervention groups by using general linear models and controlling for covariates.

Results
The improvement in pain scores across the three body regions was greater for participants who used the lighter, wider-diameter curettes. In the final adjusted model, the differences were statistically significant only for the shoulder region (p=0.02).

Conclusions
The study results show that dental instrument design has an effect on upper extremity pain in dental practitioners. Using a lighter instrument with a wider diameter may be an easy and cost-effective intervention to reduce or prevent upper extremity pain associated with dental hygiene procedures.

Clinical implications
To prevent or reduce arm pain, practitioners should consider using lightweight instruments with large diameters when performing scaling and root planing procedures.


Investigation of inhalational conscious sedation as a tool for reducing anxiety in adults undergoing exodontia

Hierons, R.J., Dorman, M.L., Wilson, K., Averley, P., Girdler, N.

Aim
To determine whether adult patients’ dental anxiety levels decrease following exodontia carried out under inhalational conscious sedation with nitrous oxide and oxygen (IHS) and local anaesthetic (LA).

Design
Retrospective analysis of pre- and postoperative modified dental anxiety score (MDAS) questionnaires completed by patients treated in a primary care oral surgery service between July 21, 2010, and December 17, 2010.

Methodology
Some 138 patients who had undergone exodontia were divided into three groups: moderate to severe anxiety (MDAS scores 11-25) treated under IHS and LA (n=60), mild anxiety (MDAS scores 5-10) treated under IHS and LA (n=43), and mixed anxiety (MDAS scores 5-15) treated under LA only (n=35). The mean pre- and postoperative MDAS scores were analysed by means of one-tailed, paired t-tests.
Results
The moderate to severely anxious group treated under IHS and LA showed a statistically significant decrease of 3.68 between the mean pre- and postoperative MDAS scores (p=0.000). The IHS mildly anxious group showed a decrease of 0.07 (p=0.392) and the LA group showed a decrease of 0.23 (p=0.227). Neither of these results was statistically significant.

Conclusion
These results support the use of IHS to reduce anxiety of exodontia, in moderate to severely anxious adults undergoing minor oral surgery (MOS) procedures under LA in primary care oral surgery.

British Dental Journal 2012; 213 (E9).

Whole mouth antimicrobial effects after oral hygiene: comparison of three dentifrice formulations
Fine, D.H., Sreenivasan, P.K., McKiernan, M., Tischio-Bereski, D., Furgang, D.

Aims
This study compared the antimicrobial effects of three commercial dentifrice formulations: sodium fluoride/triclosan/copolymer (TCN/C), stannous fluoride/sodium hexametaphosphate/zinc lactate (SnF2/SHMP) and sodium fluoride (NaF).

Materials and methods
Thirty-five adults (15 men and 20 women; average age 33 years and pockets <5mm) completed this double blind, triple-crossover study. After washout, baseline samples from four sites, plaque, saliva, tongue and buccal mucosa, were collected and evaluated for six microbial types anaerobes, Streptococci, Actinomyces, hydrogen-sulphide (H2S)-producing bacteria, Fusobacteria and Veillonella. A specific dentifrice was randomly assigned for twice-daily use for 13 days. On day 14, 12 hours after brushing, samples were collected for microbiological evaluations. Alternate dentifrices followed this identical protocol.

Results
For all four oral sites and six organisms evaluated in each site, the TCN/C demonstrated significant reductions (49-83%) as compared with the other treatments (p<0.01). The SnF2/SHMP group showed significant reductions of 14-43% for 14 of 24 outcomes as compared with the NaF group (p<0.01), with no differences in 10 outcomes.

Conclusions
The TCN/C dentifrice formulation consistently demonstrated significant reductions for a range of microorganisms in diverse oral sites in comparison with the NaF, or the SnF2/SHMP dentifrice formulations as seen 12 hours after brushing.

The Dental Complaints Resolution Service, which is supported by the Irish Dental Association, was established to offer patients the chance to resolve complaints about their dental treatment in a fair and timely manner. Michael Kilcoyne, Chairman of the Consumers Association of Ireland, was appointed mediator of the Service, which is based in Mayo, and he has been dealing with a wide range of issues from patients and dentists since the Service was launched in May 2012. In fact, demand for the Service has been greater than anticipated.

“It has been a lot busier than I expected in terms of numbers. I expected about 100 complaints in the first year, an average of about two a week, but we have already surpassed that figure after less than seven months.”

Of the more than 100 complaints/queries received so far, 10 have been resolved to the satisfaction of both parties, 18 are nearing a satisfactory conclusion, in 27 Michael is awaiting a response from the dentist, six are outside the jurisdiction, and five are being referred to an expert advisory committee.

ANN-MARIE HARDIMAN spoke to Michael Kilcoyne, mediator of the Dental Complaints Resolution Service, about his interactions with patients and dentists, and what issues are emerging.

**Communication breakdown**

**It’s good to talk**

According to Michael, patients telephone initially to tell their story and find out if he feels that they have a valid complaint. Some may also have contacted a solicitor, but are unsure as to the best course of action to pursue. Others simply want to talk about what has happened to them with someone in an official capacity (approximately 10 calls so far). Some have even been referred to the Service by their dentist. Michael then asks them to put the issues they
have related to him in writing as the next step in the process. Once he receives this written complaint he can then contact the dentist involved to inform them that the complaint has been made and give them the opportunity to respond. In 20 cases, the written complaint has never materialised. “It’s very easy to complain over the phone, but much more difficult to put it in writing,” says Michael.

At this initial stage, Michael will also try to establish communication between patient and dentist.

“I will always ask patients: ‘Have you spoken to your dentist?’ There is generally a good relationship between patients and dentists. In fact, even when talking to me about a complaint, many patients will praise their dentist.”

**Grounds for complaint**

Patients complain about a range of issues, not all of which fall within the Service’s remit. One common situation arises when a patient has had dental work performed abroad, and subsequently experiences problems. The patient then visits a local dentist to have the problems fixed, and if this does not happen, they may complain to Michael. Michael has also spoken to a significant number of patients who are extremely unhappy that treatments they were previously entitled to under the PRSI or Medical Card schemes are no longer available to them.

“PRSI patients argue that they are paying twice, and patients with Medical Cards find that they are not entitled to certain treatments.” Unfortunately, Michael can only refer these patients to their local TD. Michael has also been contacted by a dentist about non-payment of a patient’s bill, but this does not fall within the remit of the service and Michael reminds dentists that there are formal procedures for pursuing monies in these circumstances.

**The issues**

At any time, Michael can be dealing with a number of complaints that are at different stages: awaiting written confirmation of the complaint from the patient; awaiting a response from the dentist; or in discussion with a view to resolving the complaint.

While unable to comment on individual cases, Michael summarises the types of issues that he has dealt with during the year. Patients complain about poor clinical treatment (the dentist extracted a tooth but left the root in place), poor communication (‘the dentist was rude to me’), and price (‘treatment was too expensive’, or ‘extra costs came up once treatment had started’). Complaints about fees apply mainly to major, expensive procedures such as implants.

In Michael’s opinion, what the vast majority of cases demonstrate over and over again is the need for the highest standards of communication between dentist and patient.

“The dentist and their attitude to the patient is critical. The dentist must explain everything clearly – all the steps of the treatment, why the patient might experience pain, the costs involved … If there was more communication between patients and dentists, it would dramatically reduce the number of complaints.”

When contacted about a patient complaint, most dentists are very cooperative. Michael always asks the dentist for their view of the complaint, and advises them to contact their indemnity provider as a precaution.

“If the dentist responds promptly and says that they are doing that, it shows that they are taking the complaint seriously. Most are very good and want it sorted out.”

While Michael feels that the majority of cases can be resolved to the satisfaction of all parties by the DCRS, he is dealing with a small number of cases that he feels will have to go further. In the case of a particularly serious complaint, or one where resolution proves difficult, Michael consults a panel of experts, which looks at the case and makes recommendations. He emphasises, however, that these are not binding.

“This is a voluntary scheme – the dentist or patient can opt out at any time. It needs buy-in from both parties in order for it to work.”

**Web stats**

Since the Dental Complaints Resolution Service was launched in May 2012, there has been significant interest in the Service, which can be seen in the steadily increasing visits to its website – www.dentalcomplaints.ie. Since May, the website has had 18,304 hits, which represents 4,979 individual visits. The number of visits to the site was high from the beginning (942 separate visits in the launch month), and has risen steadily to 1,302 visits in October 2012.
To be able to work to their full potential, dentists need to be both physically and mentally fit at all times. There are very few other professions that cannot work with a broken finger, a sprained ankle, or even a sore shoulder. Many dentists continue to work when they are ill or injured, which is often ill advised as they run the risk of exacerbating a medical condition that they may be suffering from. Locum costs are expensive, and if dentists do not have the financial safety net of an income protection policy in place to pay them while they are unable to work, an illness can cause financial pressure, as well as the stress caused by the illness itself.

Income protection provides dentists with an income when they cannot work due to an illness or an accident. The forefathers of the profession recognised the need for this protection for dentists and, as a result, DG Mutual and Dentists’ Provident (the two companies that offer dentists ‘day one’ cover) were set up in the 1920s to provide dentists with this cover. No other profession has had mutual societies like these set up to provide this benefit for their members when they are sick.

The types of cover available
The main companies providing income protection to dentists in Ireland are DG Mutual, Dentists’ Provident, Irish Life, Friends First, Aviva and New Ireland. There are many different features of income protection policies, so it is vital that you choose the product that offers the features that best suit your particular needs. You can choose a policy that covers you to the age of 55, 60 or 65, and you can cover up to 75% of your income depending on the company you choose.
A really important feature of this product for dentists is the deferred period. This is the period of time that a person has to be off sick before the insurance company will pay the income protection benefit to you. The only two companies that provide dentists with day one cover are Dentists’ Provident and DG Mutual. Day one cover means that there is no waiting period – the claim starts from the onset of your illness or accident. All of the others have minimum deferred periods ranging from four to 13 weeks. See Table 1 for the minimum deferred period before claims will commence payment in each of the insurers operating in the Irish market.

The deferred period is viewed by insurance companies as being the ‘excess’ on the policy, i.e., the portion of the claim that insured people have to bear themselves. With that in mind, you would expect the day one cover to be considerably more expensive, with no deferred period for the insurer to fall back on. In fact, this is not the case. In most cases the four- and eight-week deferred policies are more expensive than the day one cover.

The DG Mutual day one income protection policy now qualifies for tax relief on the premiums, making it even more cost-effective than before.

### Insurance companies and mutual societies

One very significant point worth noting is the difference between the ownership structures of the companies that you are insured by. Both DG Mutual and Dentists’ Provident are mutual societies that were set up for the benefit of their members. All profits and reserves that are built up are kept by the society for the benefit of members. The other companies mentioned have shareholders to whom they pay their profits as they arise.

### Gender equalisation of premiums

From December 21, 2012, premiums being paid on insurance products can no longer differ due to the gender of the applicant. This means that men and women will pay the same for all of their insurances. This has had a very significant effect on premiums for females for income protection, as prior to this they were charged between 25% and 50% more in premiums than their male counterparts. This may seem unfair, but the insurance companies justified this in the past because of the higher levels of claims made by females versus males. However, this anomaly is now gone, and men and women will now pay the same for new policies. Female dentists may see a reduction in their premiums, so existing female policyholders should consider getting fresh quotes for their income protection insurance. However, they should not go blindly cancelling an old policy, as if they have suffered from any illnesses since taking out the previous plan, they may well be excluded cover for this condition on a new policy. This would potentially negate the benefit of the premium saving on the policy.

### Underwriting

Both Dentists’ Provident and DG Mutual carry out very comprehensive underwriting on new applicants. They typically look for either a GP’s report or a copy of your GP’s files before making a decision on acceptance terms. In some cases they will also ask a new applicant to undergo a medical examination; this is requested automatically if the cover is over €1,000 per week but it can also be requested by the insurer if they would like clarification on something that has arisen from the medical notes.

A very common irritation expressed by people going through the underwriting process is in relation to pre-existing conditions. Many of us will pick up health issues along the way, some of which are quite minor, although some obviously are more serious. Either way, at the time of application the underwriter may exclude any pre-existing conditions that the applicant has. If the insurer chooses to exclude cover for certain illnesses, this will arise at this point and the exclusions will have to be accepted by the applicant before cover is put in place. However, there is a real benefit in this rigorous approach being taken by these insurers at the commencement of the policy. By underwriting new members in this comprehensive manner, both companies can keep their unpaid claims to a minimum, thereby giving greater comfort that all claims will be paid quickly and without issue when the policyholder needs it: when they are sick.

### At the end of the day ...

For dentists today, income protection is a necessary requirement. It is every bit as important (or even more so?) than your car insurance, buildings insurance, etc. You can replace a car, but if you get sick, can you replace your income? Also, most policies now have revenue approval, making the premiums tax deductible. Unexpected events such as an illness or accident do unfortunately happen to us all. If this happens, it is important that you can concentrate on getting better and back to work without the stress of worrying about the loss of your income.

### Table 1

<table>
<thead>
<tr>
<th>Company</th>
<th>Minimum deferred period before payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>DG Mutual</td>
<td>Day one (nil)</td>
</tr>
<tr>
<td>Dentists’ Provident</td>
<td>Day one (nil)</td>
</tr>
<tr>
<td>Aviva</td>
<td>Four weeks</td>
</tr>
<tr>
<td>New Ireland</td>
<td>Eight weeks</td>
</tr>
<tr>
<td>Friends First</td>
<td>13 weeks</td>
</tr>
<tr>
<td>Irish Life</td>
<td>13 weeks</td>
</tr>
</tbody>
</table>

John O’Connor is Managing Director of Omega Financial Services, which is the approved provider of income protection to the IDA.
Data protection, patient records and the law

In the first of an occasional series on legal and regulatory topics that has been specially created for the Irish Dental Association by Dental Protection, CIARAN O’RORKE and AOIFE NALLY consider a key element of clinical care – the patient record.

Record keeping is an integral part of every dentist’s working practice. This is reflected in the Dental Council’s ‘Guide to Professional Behaviour and Ethical Conduct’, which makes clear that dentists “must keep accurate and up-to-date records” for all patients. Records help to protect the interests of both patients and dentists. Good records provide an objective picture of the care provided and help to improve standards of care. In the event of a complaint, the records can assume a very significant role indeed and may be subject to intense scrutiny by a third party. In our experience, many clinical negligence claims are rendered indefensible simply because of problems with the records; they can sometimes be inaccurate, illegible, too brief or even non-existent. One of the most frequent pieces of advice we give to dentists is that the best defence to any claim is a set of well-written notes.

Writing good records
When writing records, dentists need to take care with both content and presentation. When it comes to content, this should include the history, examination and investigations, as well as what discussions took place with the patient. Importantly, the consent process should be recorded, and discussions about the treatment, the options, risks and costs, as well as how long the treatment is likely to last, should also be recorded. A copy of any referral letter should be kept, as well as a copy of the estimated cost, treatment plan, and full details of the treatment carried out. The records should also contain the reason why a radiograph was taken. The notes should include sufficient detail for another dentist to seamlessly take over care of the patient.

After content, dentists need to consider the presentation of their notes. The notes should be legible, and the date, time and author of each entry in the chart should be clearly recorded. The notes should be objective and, where opinions are expressed, they should be based on the facts recorded within the record. Records should be clear, contemporaneous and tamper proof. Abbreviations, if used, must be unambiguous and universally understood.

There will be times when records will require amendment. The correct method of amending a note is to put a line through the original wording such that the deleted record still remains legible and insert the new entry, as well as the reason for the amendment, and the date and time on which it was made.

Access to records under data protection and freedom of information legislation
Both the Data Protection Acts and the Freedom of Information (FOI) Acts provide patients with the legal right to be given a copy of their dental records. The Data Protection Acts apply to information held by dentists in both a public and a private capacity, i.e., patients can apply under the Data Protection Acts for a copy of their records whether that patient is a private or a public GMS patient. The FOI Acts apply only to records held by a dentist as an agent of a
public body, i.e., records of Dental Treatment Services Scheme (DTSS) patients. While dental records of patients covered by the DTSS scheme remain under the physical control of the dentist, the dentist is not the decision maker for the purpose of deciding whether access should be granted. The records must be furnished to the HSE and the dentist should advise if there is any reason not to furnish the records, noting that the decision rests with the HSE.

In terms of the practicalities, it is important to note that although a dentist may ask the patient to pay a fee for a copy of the records, this charge cannot exceed €6.35. This is obviously not a significant amount of money, particularly in circumstances where there is a large volume of material to be copied. This highlights the fact that the data protection regime is designed to facilitate access to records and minimise restrictions. Once a request has been made and any fee charged paid, the records should be provided within 40 days. The legislation does not give patients the right to be furnished with the original records; patients are only entitled to a copy of their records. Copying radiographs can be expensive so under the Act patients are only entitled to paper photocopies or radiographic images of their radiographs.

With all rules there are exceptions, and the right of access is not an absolute one. Data protection legislation sets out exceptions to the right of access, including information subject to legal professional privilege and where the request relates to the records of a third party. It would be our advice to a dentist in receipt of a data protection or FOI request for a patient’s records that the following steps should be followed:
A. Ensure that the data protection or FOI request is in writing and place the request on the patient’s file.
B. Ascertain who is the correct decision maker in relation to the release of records, bearing in mind whether the patient is a private patient or attending the dentist under the DTSS.
C. Comprise the procedural requirements. In this regard, dentists should bear in mind the maximum fees payable and the time frame allowed for responding to requests.
D. Consider any relevant exemptions that might apply.
E. Respond to the patient in writing. If access is being refused, the reasons for refusal should be set out in writing and the patient should be informed of their right of appeal to the Data Protection Commissioner/Information Commissioner.
F. If necessary, seek advice from one of DPL’s dento-legal advisers.

Storage and security of records
Data protection legislation requires that appropriate security measures be put in place, which take account of the harm that would result from unauthorised access to the information. Given the highly sensitive nature of dental records, it is important to be very conscious of security. From a practical point of view, offices should be locked and alarmed when not in use. If dental records are saved to portable devices such as a laptop, significant precautions should be taken, including encryption. Records should be disposed of securely.

Retention of records
There is no legislative provision providing for the minimum periods for which records should be retained. The Data Protection Acts require that personal data should only be held for as long a period of time as the purpose for which it was originally collected.

The Dental Council’s ‘Code of Practice on Professional Behaviour and Ethical Conduct’ notes that in the case of adults, records should be kept until the patient’s 25th birthday, or their 26th birthday if the young person was 17 when they finished treatment.

From a legal point of view, a court action for negligence should be brought within two years of the incident; however, this general rule is subject to a number of exceptions, including cases involving minors and persons of unsound mind. In addition, a patient may be able to circumvent the time limit on the “date of knowledge” principles, i.e., that he or she could not have been aware that he or she had a case until some time after the incident.

Transfer of records
Before a patient transfers to a new practice, dentists should facilitate this, if requested to do so, by transferring a copy of the patient’s records to the new dentist with the patient’s written consent.

Conclusion
It is hopefully clear from this article that records serve as much more than an aide memoire for dentists. It cannot be overstressed that having a good record-keeping system in place is a fundamental part of dental practice.

Ciaran O’Rorke is a Partner, and Aoife Nally is an Associate with Hayes Solicitors, Dublin, one of Dental Protection’s panel of lawyers supporting members working in Ireland.
Classified advert procedure

Please read these instructions prior to sending an advertisement. Below are the charges for placing an advertisement for both members and non-members. Advertisements will only be accepted in writing via fax (01-2950092), letter or email (fionnuala@irishdentalassoc.ie). Non-members must pre-pay for advertisements, which must arrive no later than Friday, January 11, 2013, 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.

<table>
<thead>
<tr>
<th>Advert size</th>
<th>Members</th>
<th>Non-members</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 25 words</td>
<td>€75</td>
<td>€150</td>
</tr>
<tr>
<td>26 to 40 words</td>
<td>€90</td>
<td>€180</td>
</tr>
</tbody>
</table>

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
- Positions Vacant
- Practices for Sale/To Let
- Practices Wanted
- Unwanted/Second Hand Equipment for Sale

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

POSITIONS WANTED

Experienced dentist looking for part-time position in the East. Email: dentist@live.ie.

Skilled, conscientious, friendly dentist with 15 years’ experience available for part-time associate position, clinical sessions and locum cover. Email: oralsculpture@hotmail.com.

POSITIONS VACANT

Associate wanted with view to partnership/ownership. Hardworking, enthusiastic associate dentist required for busy thriving practice in Co. Tipperary. Minimum five years’ experience. Modern, fully equipped surgery with excellent support team. For further information contact Linda, Tel: 087-228 1282, or Email: lindaryan001@gmail.com.

Cork suburb. Part-time, enthusiastic, gentle, friendly associate wanted for family dental practice. Must be good communicator. Up-to-date CPD. May suit dentist with special interest. Email CV with cover letter to: mmmcdental30@yahoo.com.

Johnson & Johnson is looking for a talented dental healthcare professional to ensure that our professional oral care programmes in Ireland are a big success. To find out more and apply, visit careers.jnj.com, requisition number: 000007AV.

Part-time associate required for busy modern practice, Virginia, Co. Cavan, to cover maternity, December to May. Fully computerised, digital OPG, hygienist, orthodontist, oral surgeon. Possibility of permanent work following maternity cover. Tel: 087-744 0398, or Email: info@virginiaidentsurgery.com.

Dental associate required for practice 30 minutes from south Dublin. Saturday sessions initially, with strong possibility of building up further sessions. Please Email: eastcoastdentalposition@hotmail.com.

We are currently seeking an associate for a busy, modern practice in Co. Monaghan, with great earning potential. Please apply with CV to Mr W Smith, Tel: 042-975 4833, or Email: WHDC@eircom.net.

Dental associate urgently required to replace outgoing colleague. Located 40 minutes from Galway City. Full-time clinical and clerical support given. 50% private and 50% medical card. OPG, intra-oral camera, hygienist service, etc. Full/part-time considered. Replies to Box Number J512.001.

Dental surgeon, Co. Donegal. Associate dental surgeon with interest in crown and bridge work/endo required to work as part of existing team. Reply in first instance with CV to: adrian.millen@tiscali.co.uk.

Experienced dentist required part-time for six months maternity cover February-August in Athlone area. Potential long-term position. Email: dentistrequiredathlonearea@gmail.com.

Part-time dentist, experienced RCT crowns, required in busy northside practice. Excellent remuneration. Please Email: dijconneely@gmail.com.

Roscrea, Co. Tipperary. Locum required for maternity leave from mid November 2012 to mid February 2013. Please contact Ann Marie Julian, Clonganhue, Cappawhite, Co. Tipperary. Tel: 087-969 3285 after 7.00pm, or Email: care@thedentalpractice.ie.
Dentist required to join the team in our busy Dublin 2 city centre practice. Superb conditions and package. Immediate start possible. Contact Susie. Email: susie@smiles.ie.

We are looking for an experienced, enthusiastic, ambitious and friendly dentist to join our Galway City team. We will provide a modern environment with full clinical assistance in a pleasant, fully equipped, digital multidisciplinary practice. Please forward details to galwaydentists@hotmail.com.


Dental surgeon required in Ballylanders, Limerick – good earning potential. Modern practice with happy working environment. Tel: 087-097 9443, or Email CV application to: monikaraffael@gmail.com.

Orthodontist required to replace departing colleague in long-established family practice in South Co. Dublin. Please Tel: 01-280 9753, or Email: info@dentalclinic.ie.

Orthodontist required for initially one session per month in busy private practice 20 minutes from Cork City. Please Email: corkdentist96@yahoo.ie if interested.

Periodontist required for sessions in busy large clinic in South Dublin. Please Email: victoria@seapointclinic.ie with CV and for further details.

Experienced periodontist required for a well-established Dublin 4 practice. Excellent prospects. Partnership options. Contact, in confidence, Avesh at Orion Recruitment, Tel: 0044-208 429 5194, or Email: avesh@orionrecruitment.co.uk.

Endodontist wanted for busy private practice, Dublin 14, one to two Saturdays per month initially. Please Email letter of interest and CV to: endosession@gmail.com.

Part-time experienced hygienist required for Lucan surgery. Tel: 01-628 2659, or Email: mckeon.mcaleese@gmail.com.

Hygienist/practice marketing manager/practice representative. Exciting position for an outgoing, confident but caring individual who is willing to fulfill multiple roles. Experience with Software of Excellence essential. Forward-thinking, expanding practice in the Midlands. Email: abbeyleixdental@gmail.com.

Hygienist required for maternity leave cover in a busy modern practice in Carlow Town. One day per week with very good support team. Applicants must be very patient focused. Apply to: montgomeryhousedc@gmail.com.

Locum hygienist wanted for a well-established Dublin general dental practice. Initially Fridays, commencing early December, and then four days a week commencing January to cover maternity leave. Please email CV to: vacancies@dentistry.ie.

Dental nurse wanted to cover maternity leave in busy practice starting November 26. Chair-side assistance and reception work. Four to five days per week. No agencies please. Email: dentaljobsouthtipp@gmail.com.

Dental surgery assistant required for a busy, modern surgery in Ballylanders, Limerick. Experience and knowledge of EXACT preferred. Tel: 087-097 9443, or Email CVs to: monikaraffael@gmail.com.

DSA required in Kilkenny to cover sick leave. Five-day week. Immediate start and until Christmas. Please email CV to: paul@deanstreetdental.ie.

PRACTICES FOR SALE/TO LET

Dental practice wanted to purchase in Cork area. Associateship with a view also considered. Complete confidentiality assured. Please reply by Email to: dentalpracticewanted@hotmail.com, or Tel: 087-791 9171.


EQUIPMENT FOR SALE

Adec beige soft leather dental chair, also Pelton & Crane side delivery cart with separate suction. PWO. Wicklow 5K. Tel: 087-685 1568. Buyer collects.

Equipment for sale. Used CBCT (cone beam CT) scanner, four years old, still under full manufacturer’s warranty. Top of the line i-CAT 17-19 with adjustable scan height and low radiation dose. Attractively priced for quick sale. Please Tel: 087-688 4094, or Email: farronmahon@hotmail.com.

For sale. Well-established dental practice in large east Cork town. To include freehold or lease of two-surgery, purpose-built premises. Owner retiring. Contact: Niall O’Driscoll, selling agent, Tel: 087-266 55254/023-884 2700, or Email: nodriscoll@odmfinancial.ie.
January 2013

Joint Irish Endodontic Society/IDA Metropolitan Branch Meeting
January 24 Hilton Hotel, Charlemont Place, Dublin 2
Meeting commences at 7.30pm. Speakers will include Matt Zehnder, Zurich, on 'Orthograde versus retrograde treatment of persisting apical periodontitis' and 'Perio-endo lesions'.

Irish Endodontic Society Meeting - Annual Scientific Meeting
January 25 Hilton Hotel, Charlemont Place, Dublin 2
Speakers will include Alistair MacDonald, Glasgow, on 'Tips for clinical endodontics', Frank Paque, Zurich, on 'Root canal anatomy: the final frontier', and Matt Zehnder, Zurich, on 'Chemical root canal treatment' and 'Endodontic diagnostics reconsidered'.

IDA Practice Management Day
January 26 Croke Park
For further details see centre pages.

February 2013

The Dental Hygiene and Therapy Conference 2013
February 8 ILEC Conference Centre, London
For further information log on to http://dentalhygienetherapy.co.uk/docs/DHandT-Sponsor.pdf.

Metropolitan Branch Annual Scientific Meeting
February 9 Hilton Hotel, Charlemont Place, Dublin 2

1. Principles of restorative treatment planning
   Dr Gerry Cleary, Practice Limited to Prosthodontics, Dublin

2. Endodontics – diagnosis, indications for endo treatment
   Dr Pat Cleary, Practice Limited to Endodontics, Dublin

3. Periodontics for children – perio systemic interface
   Dr PJ Byrne, Practice Limited to Periodontics and Oral Surgery, Dublin

4. Practice management – concept of total quality management in a dental practice
   Dr Garry Heavey, General Dental Surgeon, Dublin

CPD Roadshow – Galway
February 9 Clayton Hotel, Galway

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CPD Roadshow – Cork
February 16 Rochestown Park Hotel, Cork

CPD Roadshow – Dublin
February 23 Bewleys Dublin Airport Hotel

March 2013

CPD Roadshow – Kilkenny
March 2 Ormonde Hotel, Kilkenny

CPD Roadshow – Sligo
March 2 Clarion Hotel, Sligo

Metropolitan Branch Meeting and AGM
March 7 Hilton Hotel, Charlemont Place, Dublin 2
Speakers will include Drs Alison Dougall and Spencer Woolfe. This meeting will be followed by the Metropolitan Branch AGM.

Irish Endodontic Society - New Graduates Night
March 21 Small Lecture Theatre, Dublin Dental Hospital, 7.30pm

CPD Roadshow – Limerick
March 23 Strand Hotel, Limerick
COULD YOU BE THE SENSODYNE Sensitive Dentist of the Year™?

The search for the 2012 Sensodyne Sensitive Dentist of the Year is now at the judging stage.

This awards programme is dedicated to showcasing the marvellous work of Irish dentists – and all through the words that mean most: those of your patients.

Patients have come forward, through this programme, in huge numbers to commend dentists for the care and professionalism with which they have been treated.

In fact, there has been an enormous reaction with a record entry in 2012. Judging takes place in December and the winners will be announced in January.
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With acid-rich foods and drinks an increasing part of modern diets, more patients than ever are at risk of Acid Wear. When enamel is under attack it is important to protect it.

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- Clinically proven in situ to re-harden acid-softened enamel
- Builds protection against future acid challenges
- Low abrasivity to help limit damage to acid-softened enamel
- SLS-free to help prevent damage to the protective smear layer of exposed dentine
- Neutral pH

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