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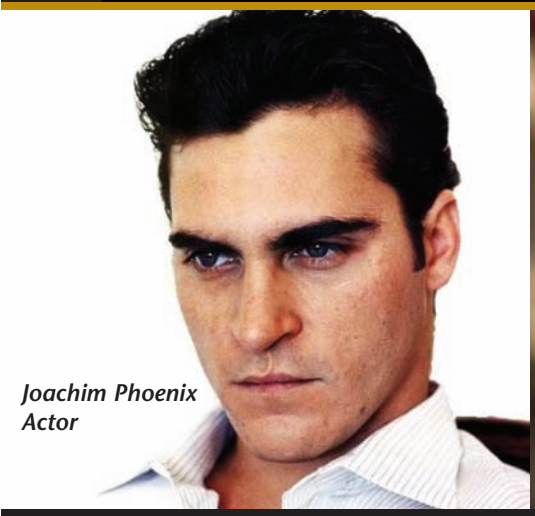
December 2011/January 2012

IDA
irish dental association

# Journal of the Irish Dental Association

*Iris Cumainn Déadach na hÉireann*

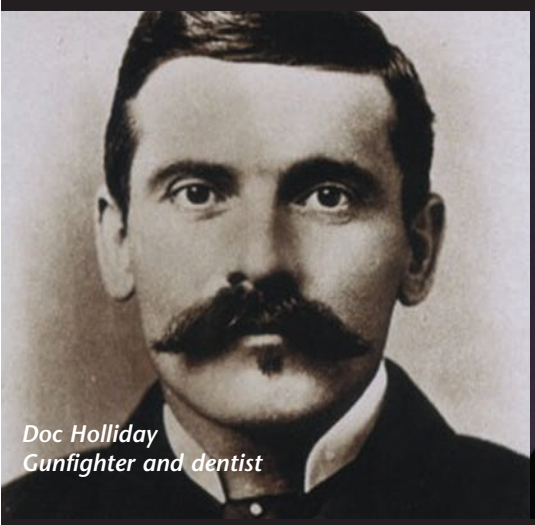


*Joachim Phoenix*
*Actor*

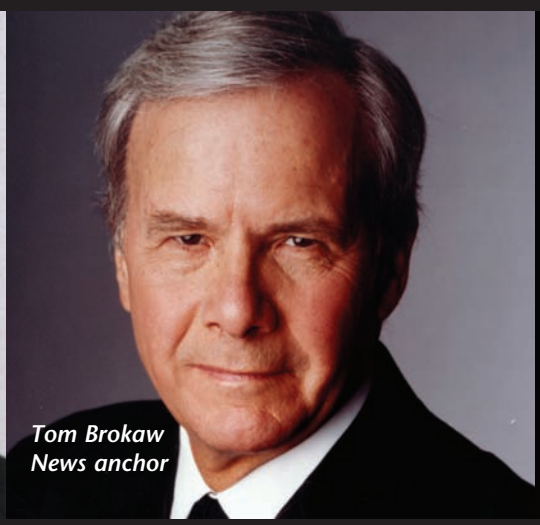
*Jesse Jackson*
*Political activist*

*Carmit Bachar*
*Pussycat Doll*

## SOME FAMOUS CLEFT-AFFECTED PEOPLE



*Doc Holliday*
*Gunfighter and dentist*



*Tom Brokaw*
*News anchor*

*Tutankhamen*
*Egyptian pharaoh*

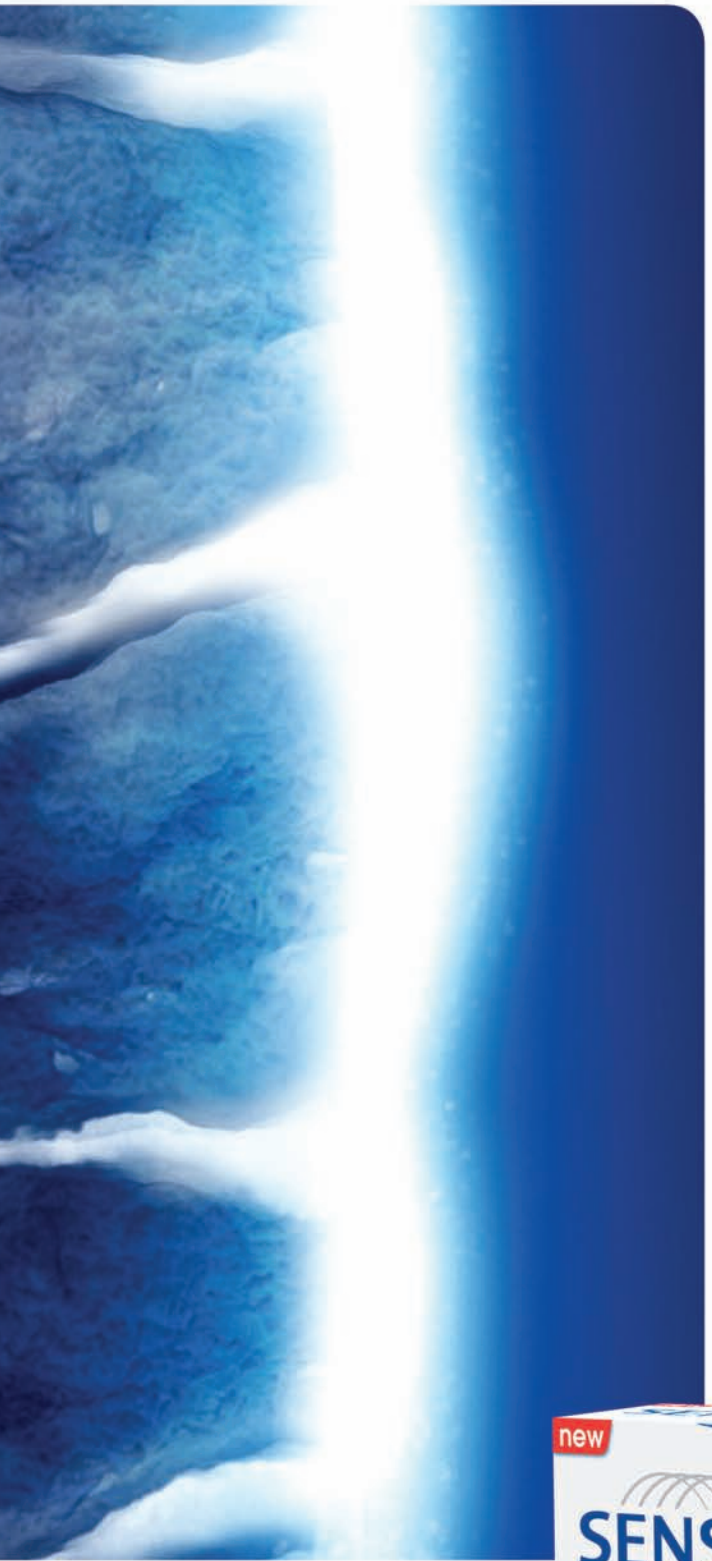
## CLEFT-AFFECTED CHILDREN IN MAYO: 1999-2007

*Wendy Harmer*
*Humourist and novelist*

*Ijubo Milicevic*
*Australian footballer*

*Stacy Keach*
*Actor*

new



Visual representation of dentine cross-section and dynamic reparative layer

# Welcome to a new layer of expertise in dentine hypersensitivity

Today you can go further than simply relieving your patients' dentine hypersensitivity.
Today you have new Sensodyne® Repair & Protect containing NovaMin® calcium phosphate technology.
NovaMin® builds a reparative hydroxyapatite-like layer over exposed dentine and within the tubules[1-5]

Starting to form from the first use,[5] this reparative layer creates an effective and lasting barrier to dentine hypersensitivity[6-8]

*Explore the new layer of opportunity with Sensodyne Repair & Protect*


GlaxoSmithKline

Specialist in dentine hypersensitivity management

**References: 1**. Burwell A *et al.* J Clin Dent 2010; 21(Spec Iss): 66–71. **2.** LaTorre G, Greenspan DC. J Clin Dent 2010; in press. **3.** Efflant SE *et al.* J Mater Sci Mater Med 2002; 26(6):557–565. **4.** Clark AE *et al.* J Dent Res 2002; 81 (Spec Iss A): 2182. **5.** GSK data on file. **6.** Du MQ *et al.* Am J Dent 2008; 21(4): 210–214. **7.** Pradeep AR *et al.* J Periodontol 2010; 81(8): 1167–1113. **8.** Salian S *et al.* J Clin Dent 2010; in press. 

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- *is the only dental publication produced in Ireland;*
- *is Irish dentists' own Journal of record.*



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SENSODYNE

# Sensitive Dentist of the Year™

## ARE YOU IRELAND'S MOST SENSITIVE DENTIST?

To recognise and celebrate the exceptional patient care of the Irish dental profession, Sensodyne and the *Journal of the Irish Dental Association* have searched for the Sensodyne Sensitive Dentist of the Year.

Patients were invited to nominate their dentist for outstanding care and treatment and there has been a huge volume of entries. Of course this is a terrific testament to the care and understanding shown by Irish dentists.

An independent panel of judges will adjudicate on the nominations in December. The winning dentist or dentists will be announced at a function in Dublin in January and featured in the next (February/March 2012) edition of the *Journal*.

So the entries are in and the judges are about to sit.

We look forward to seeing your work and your name up in lights.

IDA
journal of the irish dental association
Iris Cumainn Déadach na hÉireann

# Your Journal

Honorary Editor, LEO STASSEN reflects on the bond of trust that exists between Irish dentists and this publication, as evidenced by a recent survey.


Several years ago the Editorial Board set out to take this title, the *Journal of the Irish Dental Association* – a long established scientific publication – to another, higher level of content and coverage.

Circulation was expanded over several years from all members of the Irish Dental Association to all dentists on the island of Ireland. This circulation is externally audited by the Audit Bureau of Circulation (ABC) – the gold standard body for verifying circulation figures for the publishing industry. In 2008 the *Journal* moved from four to six editions per year and, while this required more work from everyone involved, it gave us a much more significant presence in the market.

Parallel with that development, we set out to expand the content of the *Journal*. More scientific papers were sought and received and the excellent reviewing system fully utilised. Feature content has been significantly expanded, with more interviews and more CPD event reporting than ever before. Business news was also transformed.

These developments required strong strategic planning and a determination to implement change, neither of which are easy. The members of the Editorial Board who have served over these years and all previous editors and board members should take great satisfaction in the results of a survey which is reported on page 293. It states that more than four out of five dentists surveyed (82%) would choose the *Journal* ahead of its competition.

That places us in a position of great responsibility. Clearly the *Journal* has earned your trust through a consistently high standard of content. We consider that trust to be a privilege and on behalf of the Board, I assure all readers that we are already planning further development of the *Journal of the Irish Dental Assocation* in 2012 and beyond.

## Challenges

Commercially, the *Journal* continues to face fierce competition for advertising revenue from publications not based in Ireland. However, we now have a large and loyal base of dental companies which advertise in the *Journal*. This publication would not be possible without their support and I can, in turn, urge you to support those advertisers with your business.

## In this edition…

In this edition, I am happy to direct you to three excellent scientific papers, a superb fact file, reports from two top-class CPD events (the HSE Seminar and the Munster Branch ASM), a terrific report from Europe, a practice management paper, a new IDA policy on children's oral health, and a wide range of vital news items.

And speaking of news items, we are introducing a new development in this edition. A four-page section with news about the Association and activities for members is included exclusively for members in the centre – and will only be received by members.

## Happy Christmas

I trust that all readers will enjoy this *Journal* as much as we have enjoyed preparing it for publication. May I extend a special thanks to all our reviewers who provided such an excellent service to the *Journal* throughout 2011.

Finally, I wish everyone a happy Christmas and a peaceful New Year.

Leo F. A. Stassen

**Prof. Leo F. A. Stassen**
Honorary Editor

# Forging links

IDA President CONOR McALISTER has been meeting dental colleagues at home and abroad.

I've had a busy but most enjoyable time over the last couple of months. The year continues to fly by!

In early October I had the privilege of representing the Association in Las Vegas at the 152nd Annual Session of the American Dental Association (ADA). The ADA meeting was attended by over 9,000 dentists and 6,000 other delegates. Seemingly, numbers were down this year! The opening ceremony was addressed by Dr Condoleezza Rice, former Secretary of State and now Professor of Political Science at Stanford University. It was extraordinary to see 6,000 people seated in the auditorium at 7.30 in the morning.

The next few days were very interesting. Although the ADA has almost 160,000 members, they are currently preoccupied with many of the same issues as we are, including: access to care for vulnerable groups; reinforcing the link between oral health and general health; the increasing problem with student debt; and, enhancing the public image of the profession. As you know, the IDA has recently established a new collaborative arrangement with the ADA, which will afford a number of significant benefits exclusively to IDA members. These include free online access to the *Journal of the American Dental Association* (*JADA*).

Unfortunately the ADA meeting clashed with the Annual Seminar of the HSE Dental Surgeons Group in Athlone. Congratulations are due to new President Jim McCafferty, who assembled a very impressive line-up of speakers and, I understand, hosted a very successful conference.

At the end of October, I attended the annual scientific meeting of the Faculty of Dentistry, Royal College of Surgeons in Ireland. This was another very successful meeting hosted by the new Dean, Professor Gerard Kearns. I would like to wish Gerry every success at the beginning of his term as Dean and look forward to working with him to further improve the strong links that already exist between the Faculty and the Irish Dental Association.

More recently, it was a great pleasure to attend the Winter Scientific Conference of the Irish Dental Hygienists Association at the invitation of its President, Barbara Derham.

It is a great tribute to Barbara and her committee that over 100 hygienists attended in what are difficult times for dental hygienists in Ireland. Hopefully, by reinforcing the link between oral health and general health, we can ensure that dental hygienists continue to play an important role in the dental team.

## Mouth Cancer Awareness Day 2011

Reaction to Mouth Cancer Awareness Day 2011 continues to be very positive. Thank you again to those who took part. We are still awaiting the return of a number of the participant feedback forms and are therefore not in a position yet to say how many patients were examined, etc. This information is very important for research and other purposes. If you have not already done so, please return the feedback form to Cora Murray at the Irish Cancer Society, 43/45 Northumberland Road, Dublin 4, or Email: cmurray@irishcancer.ie.

## IDA Pre-Budget submission

Following meetings with the Ministers for Health, Primary Care and Social Protection, and the information day for TDs and Senators, the IDA recently launched its Pre-Budget submission. The scale of the reduction in funding of dental care is shocking. Dentistry in Ireland has suffered cutbacks that are totally out of proportion to cuts in other areas. It is a concern that the Government does not appear to have carried out any cost–benefit analysis of the effect of these cutbacks or looked at the impact of these cuts on the oral health of the Irish population. The IDA has pointed out time and time again the implications of these retrograde steps for our patients. There is increasing evidence of a rapid reversal of the recent considerable improvements in the oral health of our population as a result of the draconian cuts in State support for dental patients.

## Practice Management Seminar – Saturday January 21, 2012

The operation of a dental practice is becoming more and more commercially driven. The IDA is organising another practice management seminar to take place on Saturday January 21, 2012, in Croke Park. There is an excellent line-up of speakers, and full details will be sent to members shortly.

## Happy Christmas

As this is my last President's News before Christmas, may I take this opportunity to wish you and yours a Happy Christmas and a very Happy 2012.

**Dr Conor McAlister**
*IDA President*


# Increased profile a highlight of 2011

Looking back on the work of the Association over the past year, it is evident that much has been achieved.

The profile of dentistry has been increased substantially through a number of initiatives. Mouth Cancer Awareness Day garnered significant and positive coverage of dentistry, which raised awareness of the importance of good oral health.

The volume and quality of CPD events was evident, from the Annual Conference in Cavan (Learning by the Lakes), to the HSE Dental Surgeon's Group Annual Seminar, to branch ASMs, to a wide range of smaller, evening events. All of these combined to provide essential continuing education for our members.

Additionally, in a very significant development for the negotiating rights of our members, we secured trade union status. And for those faced with the difficult decisions arising from a marked downturn in business, we provided an essential service advising members on all employment matters.

### Busy agenda for 2012

Looking to 2012, we already have a very busy agenda. We expect the new Dental Complaints Resolution Service – which is free to all members – to be operational from January. The new website is due to be launched very shortly, while our business conference for members in Croke Park is taking place on January 21 next.

And if that wasn't sufficient, we have some more good news. All dentists renewing their membership will receive a €100 voucher which can be redeemed against Miele domestic appliances. And, if a member purchases a Miele Dental Disinfector, they will receive a free G4100 dishwasher (worth €699) for their home. Meanwhile, for the first time, HSE dentists will be able to pay their subscription through their payroll. Of course, there are many more benefits to membership, principally collegiality during a really difficult period, but members already know that.

## Important news for members of the Irish Dental Association…

…see centre pages


*Sugar tax should go to dentistry.*

*New IDA President-Elect.*


*Taxing matters with the Revenue.*

*No special treatment for special needs.*

We name the team for Croke Park

Game on! Don't spectate. Participate.
CROKE PARK, JANUARY 21, 2012

# Children's oral health

At the recent Council meeting, the Association adopted a formal policy on children's oral health. This is the second in a series of policy positions. See the August/September edition of the *Journal* for the first policy paper on food, diet and oral health.

Children are dependent on adults to support their growth and development. They should enjoy a high standard of health and well being. The Irish Dental Association promotes the attainment of optimal oral health in all children.

### Health and healthcare equity

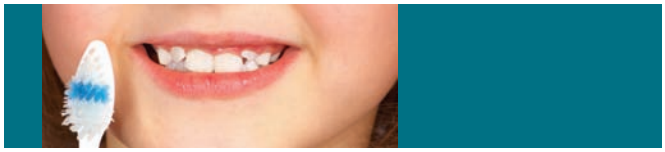
The Association values:

1. oral health as an integral part of the overall health and well being of children;
2. dental care for children that is evidence-based, safe, comprehensive, accessible, affordable, high quality, continuous and respectful of children's needs;
3. universal access to dental care that meets the unique needs of children and promotes optimal oral health; and,
4. improvements in access to dental care that reduce or eliminate financial, logistical and cultural barriers, and that address oral health inequalities.

### Dental workforce

The Association values:

1. a dental workforce that can meet the needs of children by being adequate in size, distribution, diversity and competency;
2. the role and responsibilities of general dental practitioners, HSE dental surgeons and all members of the dental team in treating children;
3. continuing education of all members of the dental team so that they are kept up to date with developments in the dental treatment of children;
4. the role and recognises the responsibility of the dentist and dental team in identifying and reporting suspicions of neglect or non-accidental injury in children to the appropriate authorities; and,
5. the unique skills and knowledge that paediatric dentists bring to children's oral healthcare and recommends that the specialty of paediatric dentistry should be formally recognised by the Dental Council in Ireland.



### Public health measures that promote oral health

The Association values:

1. the implementation of evidence-based public health programmes to prevent or minimise dental disease in children;
2. water fluoridation as a key population measure for controlling dental caries in Ireland;
3. the integration of oral health promotion into relevant general health promotion programmes for infants, children and adolescents; and,
4. the role of families, communities, schools, the public health service, the dental hospitals, and governmental and other agencies in promoting child oral health and welfare.

### The first dental visit

The Association values:

1. oral health promotion and disease prevention beginning with the first visit to a dentist by the age of one year and at least annually thereafter;
2. the inclusion of oral health promotion by public health nurses during infant and child developmental visits; and,
3. the early diagnosis by dentists of caries in very young children (early childhood caries) and recommends early management of this disease and treatment when indicated or referral to a paediatric dentist where appropriate.

*Figure 1*

*Figure 2*

*Figure 3*

## Quiz questions (answers on page 300)

*Submitted by Dr Mairead Harding*

The photographs shown are from two adolescents, both with poor oral hygiene, some white spot lesions, and no obvious malocclusion, and with no oral symptoms, and no relevant medical history.

Q1 Apart from the white spot lesions, what dental condition is common to all three photographs?

Q2 Would you be concerned about this condition?

Q3 How would you manage it?

# Dentists reiterate call for public health warnings on soft drinks

The Irish Dental Association has warned that a diet high in sugary, energy-dense foods not only has serious implications for dental health, but can also lead to chronic health problems such as heart disease and diabetes.

In a statement to mark World Diabetes Day, IDA President Dr Conor McAlister pointed out that half of all Irish 12 year olds and three-quarters of all 15 year olds have some decay in their permanent teeth. This makes it the most common chronic disease children experience in Ireland.

"There is overwhelming evidence that sugars in food and beverages are the main dietary cause of tooth decay and erosion in children and adults. In Ireland we have one of the highest per capita soft drinks consumptions in the western world at over 100 litres per capita per annum, an average of at least one 330ml can per day. In addition to dental decay, people who consume excess sugar suffer higher rates of heart disease and diabetes," McAlister said.

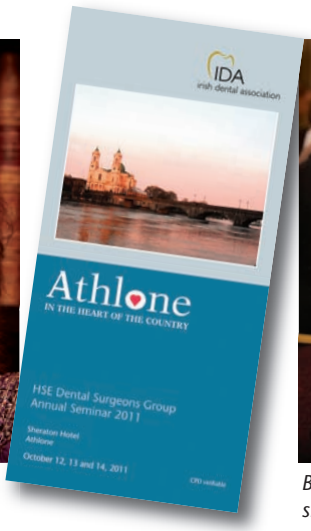
The IDA believes that the Minister for Health should ensure that public health warning labels are carried on all carbonated soft drinks and introduce legislation that would stipulate that the sugar content of food and drinks is highlighted.

"The health warning system has really worked well for tobacco and alcohol products, and it is time for similar warnings to be placed on food and drink products so that consumers can make a fully informed choice," McAlister said.

# Dentistry in the heart of the country

The HSE Dental Surgeons Group of the Irish Dental Association held its Annual Seminar in the Sheraton Hotel, Athlone, from October 12-14.

*New President of the HSE Dental Surgeons Group of the IDA, Dr Jim McCafferty, with his wife Corina.*




*Berty O'Neill of DP Medical at the trade show.*

Despite difficult times in the Public Dental Service, there was an excellent turn out for this year's Seminar, with over 200 members of the dental team attending lectures and workshops in the comfortable surroundings of the Sheraton Hotel. Dr Andrew Bolas handed over the Presidential chain of office to new Group President Dr Jim McCafferty. Andrew moves on to become President-Elect of the IDA, and best wishes were offered to both men as they take up their new positions.

## Public health and childhood trauma

The first speaker in Session One was Dr Dympna Kavanagh, Interim Oral Health Lead for the HSE and Principal Dental Surgeon, Limerick North Tipperary. Dr Kavanagh described her role in implementing oral health policy in the HSE, and gave a brief overview of the proposed strategic review of the delivery and management of HSE dental services, and what proposed changes might mean for public dentists on the ground. There is an extensive list of areas where the review may bring about change, from upgrading ICT systems to reducing the number of service areas from 32 to 17; however, changes are still under discussion and are of course subject to budgetary restrictions. She emphasised that the core care priorities for the Public Dental Service are still adult medical card holders, the paediatric service and patients with special needs.

Dr Evelyn Connolly, senior dental surgeon in paediatric dentistry in Cavan/Monaghan, gave a presentation on dental trauma in paediatric dentistry. Evelyn looked at the statistics in relation to different age groups, and discussed the need for behaviour management when treating a traumatised child. She went through the stages of treatment from assessment and medical history to reattaching tooth fragments (where possible) and aftercare. She said that it was important to educate the public, both about how to deal with dental trauma – what to do with the tooth, seeking treatment – and with preventive measures such as mouth guards and bicycle helmets.

Professor Luke Clancy, consultant respiratory physician and anti-smoking campaigner, finished the session with an impassioned address on the need for dentists to engage with tobacco control. He congratulated the IDA on Mouth Cancer Awareness Day, which showed that dentists are aware of the links between oral cancer and gum disease and smoking. He spoke of the need to be informed about smoking cessation strategies, to know patients' smoking status and use brief interventions and conversations to raise the issue with them, as even a few minutes could make a huge difference. He said that educational material and posters in the surgery were also helpful.

Professor Robbie McConnell opened the afternoon session with a presentation on new restorative materials and techniques. He said that although these are difficult times in which to talk about changes and new technology, members of the dental team need to be aware of developments. He felt that amalgam as a material will soon be gone, and that dentists will have to adapt to using composites. There are many advantages to this, such as the need to clear less of the tooth, but CPD will be essential, particularly for posterior composites. He gave an overview of some other new materials coming down the line and said that in future dentists must talk about survival of teeth rather than survival of fillings.

Endodontist Dr Frank Gallagher spoke on endodontic considerations for the traumatised incisor. He said that the ideal outcome would be keeping the tooth vital, and listed various types of injury. He went through the immediate responses to trauma, e.g., checking for non-dental injury, and discussed the detailed endodontic assessment. He went through a series

of cases to illustrate issues that can arise, and briefly discussed mineral trioxide aggregate (MTA) as a treatment option.

The final speaker of the day was Dr Simon Wolstencroft of Dublin Dental University Hospital, who spoke on 'Managing the developing dentition together – what we should expect from each other in the Public Dental Service'. He spoke about how the Index of Orthodontic Treatment Need (IOTN) is implemented within the HSE, and problems that can arise around eligibility and appropriate referral. He also discussed the role of interceptive orthodontics in treatment, and felt that there was a place for more of it, particularly in general practice. He emphasised the importance of good communication between general dentists and the orthodontic service, and the need to understand each other's difficulties in delivering public dental care.

Day one of the Seminar finished with the HSE Group AGM.

## Team day

Thursday October 13 was Team Day, and as well as workshops on CPR from Skills4Life and on decontamination from Dr Nick Armstrong, there was also another impressive programme of speakers.

Dr John Walsh spoke about using Skinnerian psychology to manage behaviour in children. He said that effective and efficient treatment and a positive dental attitude would enable dentist and dental nurse to manage even the most difficult patient. He described some of the factors that affect behaviour, such as parental behaviour, past dental history, and surgery appearance. He illustrated his techniques with a series of videos, showing how techniques such as positive reinforcement and aversive conditioning can ensure successful examination and treatment.

Dr Mary O'Farrell, Principal Dental Surgeon in Co. Meath, spoke on the need for the whole dental team to rise to the challenge of effective oral health promotion. She said that everyone on the team has a role as an oral health promoter, and emphasised the importance of consistency in oral health messages, such as how often to brush teeth, or how much to dilute squash. It is also important to address risk factors such as smoking, diet and dental hygiene with patients, and she spoke of the powerful lobby groups representing the food and drinks industries, and the difficulty of counteracting their messages with a comparatively tiny public health budget.

Dr Aifric Ni Chaollai, who works in practice limited to paediatrics and in the HSE, gave a presentation on treatment planning in paediatric dentistry, while David Croser of Dental Protection brought the morning to a close with a practical perspective on blood-borne viruses and the dental team. David covered the three main blood-borne diseases, hepatitis B, hepatitis C and HIV, and spoke about the precautions required in dentistry when a practitioner contracts these diseases. Nowadays, once the viral load is closely monitored and appropriate precautions taken, dentists with hepatitis can return to work, but a diagnosis of HIV still signals the end of practice, although newer drug treatments can drop viral load to undetectable levels. David discussed the Beijing Declaration, which gives guidelines as to how a dentist could continue to work. This is being looked at in the UK and Ireland, and will hopefully be adopted.

Dr Caoimhin MacGiolla Phadraig, course co-ordinator of the Diploma in Special Care Dentistry at TCD, opened the afternoon's proceedings with a lively and very stimulating discussion of special care dentistry and the Public Dental Service. He invited participation from the audience in a discussion of the issues around special needs dentistry, arguing persuasively for a change in outlook to see the person with special needs in the context of their life, dignity and capabilities, rather than simply their disabilities, or what is most convenient for carers or the system. He said that public practitioners had a role to play as advocates for patients with special needs, and needed to think carefully about how they provide care, including referral to specialist services.

Declan Egan of Omega Financial Services spoke on the dental professional and their finances. He gave a brief overview of the current European and global economic crisis, before looking at the issue of personal finances, such as savings, mortgages and credit card debt. He spoke at length about the need for dentists to ensure that they have adequate income protection in the event of illness or incapacity, and advised delegates to seek advice on what might be the best package for them.

IDA CEO Fintan Hourihan addressed delegates on dispute resolution and conflict management in the HSE Dental Service, and how the new Irish Dental Union can help. He offered some general advice on dealing with conflict and workplace disputes, including the HSE grievance procedure – in-house stages and, if necessary, third-party, external bodies, such as Rights Commissioners or an Employment Appeals Tribunal. He pointed out that IDA House is there to help members with any employment or dispute issues that arise.

The final speaker on Thursday afternoon was Dr Alison Dougall, lecturer and consultant in medically compromised patients. Alison went through a list of common medical emergencies that can take place in the dental surgery, from possible myocardial infarctions to asthma attacks and hypoglycaemic episodes. She pointed out that most emergencies happen in patients with an underlying condition, and that the priority is to assess and diagnose the emergency, and then manage it before it becomes serious.

## A varied programme of events

The final morning of the Seminar featured further strong presentations to bring proceedings to a close. Dr Mary Clarke, course organiser for the Diploma in Conscious Sedation at TCD, and Chair of the MFD Examination Group at the RCSI, gave a presentation entitled 'Dental extraction – does anything change?' Dr Donal McDonnell, Senior Lecturer and Consultant in Oral Radiology at the Cork Dental School addressed radiology in dentoalveolar trauma, and Dr Robert Jagger, Consultant Senior Lecturer at the University of Bristol and United Bristol Hospital NHS Trust was the final speaker, with a presentation on prosthetic dentistry for older people.

The seminar also featured an excellent trade show, with plenty of opportunities for delegates to view the latest innovations. Of course, the social programme was also superb, culminating in the annual dinner on Thursday night.

# Tooth wear to VIP marketing

An ambitious range of topics ensured that the Munster Branch Annual Scientific Meeting was an impressive day. PAUL O'GRADY reports.

*Speakers at the ASM were, from left: Professor David Bartlett; Dr Tom Houlihan; Branch Chairman Dr Judith Phelan; Leanne Papaioannou; Dr Donal Blackwell; and, Professor Tim Newton.*


*Mark Day of Handpiece Harry (right) demonstrates at the trade show.*

Dr Judith Phelan, Chairman of the Munster Branch of the Association, welcomed delegates to their Annual Scientific Conference at the Fota Island Resort Hotel in November, and introduced the speakers.

## Tooth wear – you don't always have to treat

First speaker was Professor David Bartlett, Head of Prosthodontics at King's College London Dental Institute, who is an authority on tooth wear. He reminded delegates that tooth wear takes three forms: erosion; attrition; and, abrasion. Bruxism, he said, is the most damaging cause of tooth wear and he strongly advocates the use of a Michigan splint.

On erosion and sensitivity, Professor Bartlett said that he felt it was unrealistic to tell people not to consume fizzy drinks and is analogous to telling people never to drink alcohol. "All products are ok in moderation but frequency and how we consume products can be a problem. Really, it's not what you eat, it's how you eat it that matters." His advice is to tell patients to avoid frequent sipping, avoid continual snacking and avoid brushing teeth after acidic foods.

Another interesting observation was that erosion, like some periodontal disease, goes through periods of inactivity. Therefore, he commented, you can choose to monitor: you don't always have to treat.

Professor Bartlett also recommends the Basic Erosion Wear Examination (BEWE) as a method of recording the levels of tooth wear in a patient. It has a simple index of erosion:

1 – no wear;
2 – initial loss of texture;
3 – less than 50% loss of texture;
4 – more than 50% loss of texture.

In relation to treatment, he questioned the longevity of composites on anterior teeth, while in management of tooth wear he made the following comments or recommendations:

- monitor the tooth wear and prevent further wear where possible;
- you can add composites to the incisal edges but this is not always reliable;
- you need to consider crowning teeth;
- do not consider veneers because they will not survive bruxism; and,
- use bite guards: they're simple and they work.

Professor Bartlett also cautioned that the temptation is usually to restore immediately but the outcome is not always certain – and repeated that you don't always have to treat.

## Eating disorders and body dysmorphic disorder

Professor Tim Newton is Professor of Psychology as Applied to Dentistry, also at King's College London Dental Institute. His area of particular interest is eating disorders and he gave a fascinating overview of the development of the knowledge and treatment of eating disorders over the last 20 years. They are classified under four headings: anorexia nervosa; bulimia nervosa; binge eating disorder; and, eating disorder not otherwise specified. He also explained body dysmorphic disorder to dentists.

Anorexia nervosa, he stated, has the highest death rate of any psychiatric condition: more than depression or schizophrenia. Over a period of ten years, one-third of anorexia nervosa patients recover; one-third regain weight, and one-third are chronic sufferers.

Professor Newton stated that dentists are likely to see evidence of bulimia nervosa earlier than other health professionals through acid erosion of teeth. Where this occurs, patients need to be asked about the cause of the erosion and referred. He reported that cognitive behavioural therapy is very successful in the treatment of bulimia nervosa.

Patients with body dysmorphic disorder show a disproportionate concern about one item of their appearance and have a preoccupation with a defect that can be very slight or imagined. The condition is thought to develop in late adolescence but generally only presents in the 30s. It is equally common in men as in women, and is often preceded by a social phobia related to obsessive compulsive disorder. Patients have uncontrollable thoughts and can be delusional. Depression, anxiety, anger and hostility as well as alcohol dependence are common in these patients. Most significantly, 78% of patients with body dysmorphic disorder have suicidal ideation and 17-33% have actually attempted suicide. While the condition is rare in the general population, it is more commonly seen in cosmetic surgery and dentistry, e.g., orthodontic treatment. If a dentist has any suspicions about a patient, they need to ask the patient about suicidal ideation and if they get a positive answer to make an emergency referral to either a GP, or if possible a psychiatrist or a therapist. Asked in


*Emma Johnston of Biomet3i makes a point to a caller to their stand.*


*Ciaran Likely of Nobel Biocare at work at the trade show.*

questions afterwards about the difficulty of asking a dental patient about suicidal ideation, Professor Newton said to have confidence in yourself as a healthcare professional and explain that these are really important questions. Body dysmorphic disorder responds well to fluoxetine and to cognitive behaviour therapy.

Professor Newton stated that eating disorders are very much a societal disorder and referred to the process of manipulation of body image in society. He noted that it is now extending to men. Perhaps his most chilling statement of the day was that dieting is inherently evil.

### The ortho/GDP interface

After lunch, Dr Tom Houlihan, who recently graduated with an MSD in orthodontics from the University of Washington in Seattle following 20 years in general dental practice, spoke on the interface between the GDP and the orthodontist. In his talk, Tom spoke on impacted canines and molars; crossbites; submerged teeth; root resorption; mini-implants; orthodontic extrusion; the use of Invisalign; and, pre-prosthetic orthodontics.

On impacted canines, he stressed the importance of getting in early, citing the statistic that 91% of cases improve if the Cs are extracted before the age of 11. He said that not everyone agrees, but he is in favour of OPGs after nine years of age to judge angulation.

On impacted molars, he reminded delegates that they have a 2-6% incidence, but that 66% of them self correct; while on unilateral crossbites resulting in a crooked smile and sometimes the chin off the middle, these can be fixed before 11 or 12 years, ideally by 9 or 10. He warned that after 12 years of age the glenoid fossa is permanent and cannot be remedied as before. The treatment for submerging or ankylosed teeth is prompt extraction, he stated.

He addressed the Invisalign offering of removable polyurethane aligners made from a single impression. They are supposed to deliver 0.25 to 0.33mm of movement every 14 days. Invisalign reports 70-80% success, while dentists are reporting 20-30% success. Nonetheless, he sees uses for it in certain cases and cited a study by Djeu *et al.* showing where the system has strengths, and where there are weaknesses. He believes that case selection is very important and that the dentist should be careful not to build patient expectations.

### Helping patients find affordable treatments

Dr Donal Blackwell works in Waterford city in a practice limited to fixed prosthodontics and implant dentistry. He graduated from TCD in 1988 (he and Dr Houlihan were classmates) and went into general practice. In 1996, he completed a Masters in Restorative Dentistry at the Eastman Institute in London. In 2004, he moved to New York where he successfully undertook a two-year programme in implant dentistry at NYU. He spoke on the topic of 'Making the most out of a little with less'. He explained that this referred to these very difficult times and that dentists need to help some patients to effectively live to fight another day in terms of dental treatment. In summary, he said that this required reconditioning, recycling, repairing, reducing specifications, and providing interim restorative work: "We need to be more imaginative in the treatments we provide: we need to use existing high value, low cost techniques."

He believes, for example, that nickel chrome appliances will provide functional solutions at affordable prices for patients that need treatment but who have little or no funds available to them. Donal said that he believed that there is going to be more external and less endodontic work; more tooth build-ups and fewer crowns; more dentures and less crown and bridgework or implant work.

### The VIP model of marketing

Leanne Papaioannou is a marketing consultant who specialises in customer retention and loyalty marketing programmes.

She makes a persuasive case for her strategy, which she calls the VIP model of marketing. The v stands for value and she stresses the importance of identifying your top 20% of patients. This can be measured by a combination of recency (frequency of attendance), money (value of business to practice), and referral activity. Leanne believes that it is essential that practice staff be trained to ask new customers why they chose your practice.

I stands for insight and she recommends asking a selection of your most valued patients about your practice – and not while they are in the chair! She recommends asking them if they would meet you for coffee outside the practice. For dentists who have reservations, she says that people consider it a compliment to be asked their opinion.

P is for personalisation. Leanne is adamant that when you communicate with your patient (most usually for recall) you must always personalise the communication. Not doing so can result in damage to your reputation – the implication is that you don't care about the patient sufficiently to remember their name.

The final element of the programme is to recognise and reward your top patients for their loyalty to your practice and for any referrals they give you. Leanne suggests many ways the loyalty can be recognised, but her essential point is that loyalty is a two-way process and that it is not reasonable to expect patients to be loyal without demonstrating a loyalty to them in return. Small gestures – particularly of thanks when a new patient is referred – can be very effective at showing your loyalty to your patient. This recognition and reward is the final element in what she says is a very effective model for retaining and building business.

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# RCSI Faculty of Dentistry ASM


*At the RCSI Faculty of Dentistry ASM were (from left): speakers Dr Mary Freda Howley, Prof. Brian O'Connell, Dr Ailbhe McDonald, and Prof. Charles Goodacre; Dean of the Faculty Prof. Gerard Kearns; speakers Dr Niall O'Connor, Prof. Nairn Wilson, and Dr Johanna Glennon; former dean Dr PJ Byrne; speaker Dr Anne O'Connell; and Chairperson Dr Sean Malone.*

It was standing room only at the Royal College of Surgeons in Ireland Faculty of Dentistry Annual Scientific Meeting in October, as an impressive turnout of professionals and students turned out to hear from this year's excellent line-up of speakers. The new Dean of the Faculty, Professor Gerard Kearns, welcomed delegates, and congratulated the organising committee on an excellent programme.

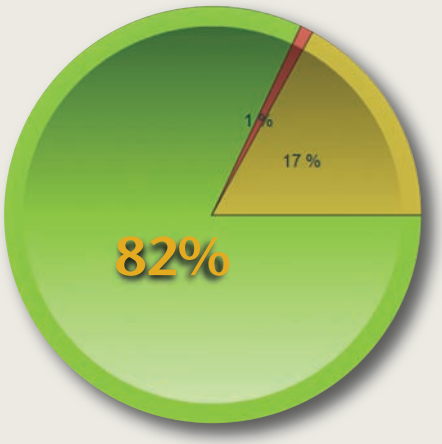
Among the highlights of the meeting were presentations from two Honorary Fellows of the College. Professor Nairn Wilson of King's College London gave a stimulating address on 'Restorative dentistry: current status and future trends', while Dr Charles Goodacre, Dean of the Loma Linda University School of Dentistry in California, gave fascinating presentations on new restorative applications for CADCAM technology, and success and failure in restorative treatment.

## Support for IFPDC

DeCare Dental Insurance Ireland built on its support of continuing dental education in Ireland at the IFPDC Winter Meeting in November. DeCare's educational grant also supported the attendance of up to three staff members per dental practice.

Dr Frank Ormsby, IFPDC Chairman, stated: "We're delighted that DeCare has continued its support of the IFPDC with this generous educational grant".

*At the IFPDC Winter Meeting, supported by DeCare Dental, were (from left): Dr Frank Ormsby, IFPDC Chairman; Dr Gerard Gavin, Chief Dental Officer, DeCare Dental Insurance; Professor Paul Brunton, Lecturer and Consultant, Leeds Dental Institute; Drs Alison Dougall and Michael O'Sullivan, Senior Lecturers and Consultants, Dublin Dental University Hospital; Dr Conor McAlister, IDA President; and, Dr Eamon Croke, President, Dental Council of Ireland.*




## 8 out of 10 dentists…

In a survey carried out by an independent marketing company on behalf of the Irish Dental Association, members of the Association were asked their preferences in relation to reading dental publications. An overwhelming 82% said that if they were only to choose one dental publication, it would be the *Journal of the Irish Dental Association*.

Asked to rank the publications, 105 dentists chose the *Journal* as the best publication available, while only a total of 22 dentists chose the two other publications combined.

These figures prove that the *Journal* is by far the dominant dental publication in Ireland. Advertisers know too that it is the only dental publication serving Ireland which has independent auditing of its circulation (ABC Dec 2010, 3,184). And if that isn't enough, the *Journal* is the only dental publication which is produced in Ireland.


## Nobel Biocare relaunches newsletter

The first issue of *Nobel Biocare News* has been printed and is being distributed among dental professionals around the world. Those interested can view it online at www.newsletter.nobelbiocare.com.

*Nobel Biocare News* is a re-launch of the very successful *Nobelpharma News* (1987-1996) and will serve as a flagship communication tool for Nobel Biocare.

According to the company, the newsletter will be a key platform for highlighting dental innovations, products and solutions, clinical expertise, customer experiences and patient outcomes. It is intended to promote a sense of community among its readers around the world by reporting on innovative and advanced restorative dentistry from their perspective.

The first issue features an interview with Per-Ingvar Brånemark, and extensive coverage of new launch products, as well as customised implant abutments – clinical and laboratory advantages.

## Medray get their teeth into dental business


*The new Medray dental catalogue.*

Medray Imaging Systems has announced the launch of its new dental catalogue, which it says is packed with digital solutions for dental surgeries, with the complete range of Carestream Dental products from X-Ray Generators and CR systems to OPG and Cone Beam 3D Systems.

Carestream Dental PACS solutions that can integrate into your existing or impending NIMIS/PACS installation are also available.

# Protecting your livelihood as an IDA member

An income protection policy provides support for dentists in the event of illness or injury says DECLAN EGAN, financial adviser with Omega Financial Management.

Income protection plans protect the policyholder in the event of their being unable to work due to accident or illness. They provide the required financial support to the client during unfortunate situations. This can be utilised to meet any of their expenditures, such as mortgage and business loan repayments, utility bills and day-to-day expenses. Income protection plans take the stress and strain from the policyholder and provide the best financial security in the event of an emergency.

Omega has specialised in advising IDA members on financial matters since 2005. We began with a discounted mortgage scheme, but have since built a relationship with members that includes offering pension, income protection and investment advice.

## Providers in Ireland

There are a number of income protection providers available to IDA members in Ireland. Each individual IDA member has different requirements, and as a result each product must be assessed on its merits and no blanket product or arrangement may be recommended to members of the profession.

As you may be aware, all Irish income protection providers have a deferred or waiting period on their product, which is a period of time that you have to be unable to work due to your illness or injury, before which you cannot claim. This means that in most instances you will have recovered before you are able to claim on the policy.

Here are the different deferred periods used by the main Irish insurance companies:

| | |
|---|---|
| Aviva | four weeks |
| New Ireland | eight weeks |
| Friends First | 13 weeks |
| Irish Life | 13 weeks |

These Irish policy premiums are tax deductible to members, and the deferred period products may be more suitable for IDA members in the public sector, as dentists in the public service are covered by their HSE contract.

However, as the majority of dentists are self-employed, they should consider insuring themselves from day one of their incapacity.

## Day 1 cover

Day 1 cover means that the policyholder does not have a deferred period on their policy, meaning that if they cannot work because of sickness or injury, even for one day, they will receive a payment. Day 1 cover gives self-employed IDA members the comfort of financial security from the first day of their claim/illness.

The two main companies offering day 1 income protection are Dentists' Provident and Dentists and General (DG Mutual). Both of these companies provide excellent day 1 cover. Both companies have been in existence since the late 1920s and have excellent financial reserves on their balance sheets due to their mutual status, which is an important consideration in these uncertain times. Dentists' Provident provides day 1 level, increasing and reducing products. This means that an IDA member can choose a product that will pay them a level amount each week in the event of their being ill or injured, until they recover, or till the age of 60 if required. They can also choose to have their cover increased each year if they wish, so that their payments will rise each year in the event of a claim. The reducing cover option offered by Dentists' Provident will pay an IDA member a fixed amount for the first six months, which will then reduce by 50% for the next six months, and to 30% after the first 12 months of the claim. The premium for the reduced cover is cheaper. Dentists' Provident will provide a lump sum payment to the dentist at the age of 60, but by the nature of the policy this tends to be small.

DG Mutual also provides day 1 level, increasing and reducing cover to IDA members. The level and the increasing cover act in the same way as that provided by Dentists' Provident, but the reducing cover has an important difference. Their reducing cover will also fall to 50% after six months but will remain at that level for the duration of the claim. This is very significant for the claimant in the event of a long-term claim. DG Mutual also provides a lump sum payment to the dentist at the age of 60, but it tends to be greater than the payment offered by Dentists' Provident.

There are a number of reasons why dentists should choose one of these companies:

| | | |
|---|---|---|
| 1. | Claims history | 99% of claims were paid in 2010. |
| 2. | Mutual status | Policy holders own the company. |
| 3. | No occupational or smoking loadings for applicants. | |
| 4. | Claims are tax free for the first 12 months. | |

Over the past 12 months Omega's clients who have income protection policies with Dentists' Provident and DG Mutual have claimed for the following reasons:

| | | | |
|---|---|---|---|
| 1. | Dentist | three weeks | car accident |
| 2. | Vet | four weeks | appendicitis |
| 3. | Dentist | four weeks | broken finger |
| 4. | Pharmacist | one week | winter vomiting bug |
| 5. | GP doctor | five months | throat cancer |
| 6. | Vet | six weeks | shoulder injury |
| 7. | GP doctor | eight days | viral infection |

This highlights the range of claims and all received prompt payments while on sick leave. It is worth noting that with an Irish income protection provider, the majority of these claims would not have being eligible for payment.

Therefore, in many cases the best recommendation we would make to a dentist is to combine a reducing cover policy from one of the above mutual companies with a 26-week deferred period policy with one of the Irish providers.

This combination provides:

1. Day 1 cover.
2. Long-term protection.
3. Tax-free claim for the first 12 months under one of the mutual contracts.
4. Tax relief on the premiums under an Irish policy.

Because of our dealings with IDA members over the past six years, we at Omega Financial Management have the necessary expertise and experience to advise the individual on the best combination of income protection products in the market. Obviously the best way to achieve this goal is to arrange an individual meeting to discuss your options. One of our nationwide team of financial consultants would be delighted to arrange an appointment.

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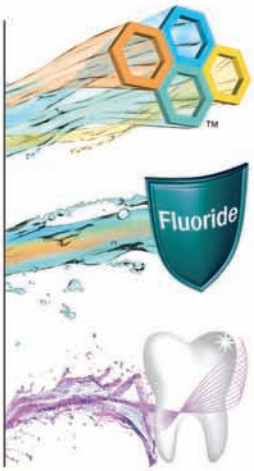


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**References: 1**. Data on file 45348, McNEIL-PPC, Inc. **2**. Data on file, microbiology dossier, McNEIL-PPC, Inc. **3**. Data on file 103-0214, McNEIL-PPC, Inc. **4.** Le Geros RZ et al. *Am J Dent* 1999; 12(2): 65-71.

LIS/012/00

# CED: the voice of dentists and oral health in Europe for 50 years

Representatives of the Council of European Dentists (CED) member and observer organisations, meeting in Brussels on November 18, 2011, for a regular General Meeting, commemorated the 50th anniversary of the CED and adopted positions on dental amalgam and infection control, says TOM FEENEY.

CED President Dr Wolfgang Doneus recalled that the CED was initially established in 1961 as the Dental Liaison Committee (DLC) with the purpose of providing the European Commission (EC) with expertise on dentistry-related issues. Dr Doneus paid homage to the founding members, including first president Dr Jean Jardiné from France.

Over the years, the organisation's range of issues of interest has expanded to encompass all major questions related to the work of dentists and the state of oral health in Europe. The maturation of the CED as a political organisation culminated in the adoption of amended statutes in 2002, under which the body was renamed the Council of European Dentists, and in the establishment of an independent CED Office in 2009.

Today the CED is a fully autonomous political body, completely independent from the interests of the European institutions, national governments and the dental industry. It represents over 334,000 dentists and is composed of 32 national dental associations and chambers from 30 European countries.

*At the recent CED Meeting in Brussels, commemorating the 50th anniversary of the setting up of the organisation were: Elaine Hughes; and, Dr Robin Foyle.*

## Dental amalgam

The CED has reiterated many times that it views dental amalgam as a safe and highly effective restorative material. It feels that a phase down of amalgam will only be appropriate if it is accompanied by effective national oral health promotion and dental caries prevention programmes, and when a suitable alternative material is available.

At the Brussels General Meeting, a Resolution on Responsible Practice, which included the statements in the panel below, was agreed.

## CED–ADEE activities

The CED and ADEE met in Brussels in July to explore matters of common interest. Participants felt that the meeting was very useful and productive, and agreed that it was necessary to maintain a continuous and open collaboration on common issues for the benefit of oral health. At the recent General Meeting in Brussels a mandate was agreed for the CED Board Task Force for future discussions with the ADEE. Suggested results to be achieved were as follows:

1. Discuss minimum training requirements established under Directive 2005/36/EC on the Recognition of Professional Qualifications, particularly the content and format of Annex 5.3.1.
2. Study the possibilities of moving to a European Credit Transfer and Accumulation System (ECTS) combined with a list of clinical competences required for the safe practice of dentistry.

### Statement on responsible practice

In support of responsible practice for the reduction of the environmental impact of the use of dental amalgam, dentists should:

1. Use amalgam separators that respect ISO standards.
2. Keep amalgam separators well maintained and serviced.
3. Use encapsulated amalgam only.
4. Fully comply with waste management regulations, in particular Directive 2008/98/EC of the European Parliament and of the Council of November 19, 2008, on waste and repealing certain Directives.
5. Ensure proper separation of amalgam waste.
6. Ensure that the disposal of amalgam waste is carried out by licensed carriers, leading to appropriate recycling.
7. Continue to improve the oral health of our communities and work in the interest of patients.

### Statement on alternative materials

1. The scientific community is not yet fully able to demonstrate the relative emerging risks of the use of alternative materials.
2. Evidence about the toxicology of the alternative materials is a work in progress.
3. The profession should urge manufacturers to fully declare the chemical composition of the alternative materials.
4. The environmental data regarding the use of alternative materials is lacking and the profession should urge the decision-makers to know more.
5. More research on alternative materials is highly recommended.

3. If possible, develop a joint proposal on minimum training requirements with regard to the review of Directive 2005/36/EC, to be submitted to the European Commission.

### E-Health

Healthcare systems, particularly in continental Europe, are becoming increasingly dependent on information and communications technology (ICT) to deliver quality care to EU citizens. The current challenge for the EC is to achieve the interoperability of e-Health systems and services in Member States. Due to the increasing importance of e-Health at EU level, and the growing number of related projects that might affect healthcare professionals, a new CED Working Group dedicated to e-Health issues has been set up. Its remit, among other things, includes the following:

1. Research of commonly used codification for diagnosis to achieve interoperability of e-Health systems.
2. Research and recommendation about codification for treatments to achieve interoperability of e-Health systems, particularly with regard to forensic dentistry.
3. Specify common standards on information exchange between professionals regarding patient records at EU and national level.
4. Study the content and extent of usage of existing standards for information exchange concerning basic dental software 'language' (e.g., DICOM for x-rays, XML-HL7, etc.).
5. Monitor and guide initiatives on the use of technology for remote consultation (e-Consultation) and patient monitoring in the home (e-Home).
6. Monitor EU political and legislative developments on e-Health and follow their implications for the dental profession.
7. Gather information from CED members about their e-Health applications.

### Education and professional qualifications

On July 5, 2011, the EC published the summary of responses to the public consultation on the modernisation of the Professional Qualifications Directive (PQD), as well as the evaluation report, which was also used to prepare the Green Paper on the modernisation of the PQD, which was published on June 22. The Green Paper summarises stakeholders' views on the modernisation of the PQD and introduces the new features of the professional card, linking the card to the Internal Market Information (IMI) System. The legislative proposal on the modernisation of the PQD is planned for December 13, 2011.

### CED position

The CED welcomes the Commission's initiative to modernise the PQD and the opportunity to comment on the Green Paper. The PQD is currently one of the main concerns of the dental profession, as the evaluation process has shown that the automatic recognition system does not work perfectly. In fact, although the PQD has succeeded in facilitating the free movement of professionals, it has not succeeded in monitoring the dental curriculum to cope with the evolution of scientific knowledge. Moreover, in some Member States, recent educational reforms are resulting in implementation of new educational solutions, which might undermine the high standards of dental education and delivery of healthcare, jeopardising patient safety.

*In attendance at the meeting were: Dr Barney Murphy; and, Dr Tom Feeney.*

In order to enhance confidence and facilitate the principle of automatic recognition, the dental profession strongly recommends that the modernisation of the PQD takes into account the following:

1. The minimum duration of training for dentists should be expressed not only in years (five years), but also in training hours (5,000 hours), in order to safeguard against part-time training and the proliferation of 'weekend diplomas' by private universities.
2. Annex 5.3.1 of the PQD should reflect the scientific and technological advances in medicine as well as in educational sciences, and a minimum list of competences should be added in a new annex.
3. The principle of automatic recognition should apply to the dental specialties, in order to facilitate the mobility of dental practitioners and ensure high quality of specialist dental care. It is highly regrettable that this possibility is only foreseen in the PQD for medical specialties.
4. The language regime under Article 53 of the PQD should be clarified.
5. The dental practitioners' activities should be better described.
6. The principle of partial access should not be applied to the dental profession or to any other health profession.
7. A specific mechanism to consult with relevant stakeholders should not be deleted from the PQD.
8. The use of the IMI system should become compulsory for purposes of administrative co-operation between competent authorities.
9. The extension of the recognition procedure to cover third-country qualifications may give rise to abuses of the system in the form of 'forum shopping' and would be excessively burdensome for competent authorities in the host Member State.

### Infection control code

CED members adopted the CED Infection Control Code, laying out the principles all dentists should adhere to in order to prevent and reduce infections in dental settings. The resolution stressed the overall responsibility of the dentist as the leader of the dental team to implement the relevant decontamination, cleaning, disinfection, sterilisation, waste management and a wide range of hygienic procedures necessary for ensuring the safety of patients and of the members of the dental team.

## Single implants with different neck designs in the aesthetic zone: a randomised clinical trial

*den Hartog, L., Meijer, H.J.A., Stegenga, B., Tymstra, N., Vissink, A., Raghoebar, G.M.*

**Objectives:** To compare single implants in the aesthetic zone with different neck designs for marginal bone-level changes and clinical outcome measures.
**Materials and methods:** Ninety-three patients with a missing anterior tooth in the maxilla were randomly assigned to be treated with an implant with a 1.5mm smooth neck ("smooth group"), a moderately rough neck with grooves ("rough group") or a scalloped moderately rough neck with grooves ("scalloped group"). Implants were installed in healed sites and were loaded after three months. Follow-up visits were conducted at six and 18 months after implant placement.
**Results:** The scalloped group showed significantly more radiographic bone loss from implant placement to 18 months (2.01 ± 0.77mm) compared with the smooth group (1.19 ± 0.82mm) and rough group (0.9 ± 0.57mm). Furthermore, the scalloped group showed significantly deeper pocket depths and a higher bleeding score. There were no between-group differences in soft tissue levels. Survival rates were 97% for the smooth group and 100% for the rough and scalloped groups (p>0.05). No significant differences in outcome were found between the smooth group and rough group.
**Conclusion:** For anterior tooth replacements, implants with a scalloped neck showed more marginal bone loss and less favourable clinical outcome compared with implants with a 1.5mm smooth neck or implants with a rough neck.

*Clin Oral Impl Res 2011; 22: 1289-1297.*

## Autotransplantation of ectopic teeth: a retrospective study of 284 teeth

*Hewitt, A.B., Gelson, W.*

**Objective:** To determine outcome in a series of autotransplanted teeth undertaken by the same surgeon over 25 years.
**Methods:** This retrospective study examined the outcome of autotransplantation of 284 ectopic teeth – mainly maxillary canines – in a cohort of 235 patients with a follow-up of between 0.5 and 19 years (median 2.0). Indication for autotransplantation was severe tooth ectopia when orthodontic repositioning was considered unsuitable clinically or unacceptable to the patient. The technique involved minimal instrumentation and using a multibond appliance for stabilisation and fine tuning of tooth position. Outcomes were measured at the last clinic follow-up.
**Results:** Patients were aged between nine and 51.8 years (median 15.4). Autotransplanted teeth comprised 254 maxillary canines, four mandibular canines, nine maxillary incisors, one mandibular incisor, five maxillary premolars and 11 mandibular premolars. Apices were fully formed in 202 teeth (71%). Only 11 transplants were known to fail, but including loss to follow-up, there was a 96% five-year survival and 65% 10-year survival. Of the survival group, 180 (66.9%) were vital with no root resorption, 57 (21.2%) were non-vital with normal radiographic appearances and 32 (11.9%) were root filled with normal radiographic appearances. There was no significant difference in survival between open and closed apices (p=0.90). Of the failed group, four (36.4%) had root resorption requiring extraction and seven (63.6%) were lost.
**Conclusion:** The findings are consistent with other studies in the field. Tooth transplantation should be considered when planning rehabilitation for patients presenting with ectopic teeth.

*Oral Surgery 2011; 4 (4): 153-160.*

## Effect of implant–abutment connection design on load-bearing capacity and failure mode of implants

*Dittmer, S., Dittmer, M.P., Kohorst, P., Jendras, M., Borchers, L., Stiesch, M.*

**Purpose:** In this *in vitro* study, six implant–abutment connection designs were compared and evaluated regarding load-bearing capacities and failure modes.
**Materials and methods:** Five implants of Astra Tech, Bego, Camlog, Friadent, Nobel Biocare and Straumann were separately embedded in stainless steel tubes using polyurethane, for a total of 30 specimens. Specimens were statically loaded under an angle of 30° with respect to the implant axis in a universal testing machine using a test set-up according to ISO 14801. Failure was indicated by a load drop of 100N in force. Load-displacement curves were analysed, and maximum force and force at which permanent deformation occurred were recorded. Statistical analysis was performed using one-way ANOVA with the level of significance set at 0.05.
**Results:** Statistical analysis revealed that the type of implant–abutment connection design has a significant influence on load-bearing capacity (p<0.001). The mean maximum forces ranged between 606N (Straumann) and 1,129N (Bego); the forces where plastic deformation set in ranged between 368N (Friadent) and 955N (Bego). Failure modes differed between the various implant–abutment connection types tested.
**Conclusions:** Implant–abutment connection design has a significant influence on load-bearing capacity and failure mode of implants; however, all implant–abutment connection designs tested would be expected to withstand clinically relevant forces.

*Journal of Prosthodontics 2011; 20 (7): 510-516.*

## Fracture resistance of roots filled with gutta-percha or RealSeal®

*Lertchirakarn, V., Poonkaew, A., Messer, H.*

**Aim:** To evaluate the vertical root fracture resistance of maxillary central incisors filled with different root filling materials and sealers.
**Methodology:** Forty maxillary central incisor root canals were instrumented and divided randomly into four groups. Each group was filled using lateral compaction, with gutta-percha and AH Plus, gutta-percha and RealSeal® sealer, RealSeal® cone and RealSeal® sealer, or RealSeal® cone and AH Plus, respectively. The roots were loaded vertically by a conical spreader tip inserted into the canal and attached to an Instron testing machine until root fracture occurred. The load at fracture and the pattern of fracture were recorded. Mechanical properties of both core materials were tested under compressive loading. Results were analysed statistically by two-way analysis of variance and *post hoc* Tukey's tests. An independent sample *t*-test was used to compare the mechanical properties of the filling materials.
**Results:** Load at fracture of roots filled with gutta-percha and AH Plus (255 ± 74N) and gutta-percha and RealSeal® sealer (237 ± 38N) was significantly greater than those filled using the RealSeal® system (163 ± 29N) and RealSeal® cone with AH Plus sealer (134 ± 17N). Most fracture lines were in a bucco-lingual direction. In compressive tests of the core materials, RealSeal® had greater flow in response to load than gutta-percha, suggesting more efficient transmission of forces to the canal wall in the fracture tests.
**Conclusions:** The lower fracture resistance of roots filled using RealSeal® is probably the result of more efficient transmission of forces within the canal, rather than a direct effect of the material itself.

*International Endodontic Journal 2011; 44 (11): 1005-1010.*



## Quiz answers

(questions on page 285)

1. All photographs demonstrate toothwear. In **Figure 1**, there is loss of labial enamel surface characteristics, reduced clinical crown height and chipping of the incisal edge. In **Figure 2**, there is cupping on the mesio-buccal cusp of the occlusal surface of the lower left first permanent molar and flattening of the lower left canine cusp tip. **Figure 3** shows wear on the incisal surface on the upper and lower incisors. Toothwear is an umbrella term to describe the loss of dental hard tissue due to various forms of physical and chemical impacts not involving bacteria and excluding trauma. The term includes abrasion, attrition, abfraction and erosion. Toothwear is a normal physiological process, and increases with age. However, toothwear in children and adolescents, affecting both the primary and the permanent dentition, is increasingly being reported in the literature.

2. Once tooth substance is lost it cannot be regenerated. The early detection of toothwear in such young patients should alert the dentist to possible causes of the condition, which if overlooked may lead to complications such as sensitivity or aesthetic problems if the condition progresses.

3. Recognition that the condition is present is the first step. A careful history, including medical history, medicines used, diet and habits, is essential to establish the causative factors. Counselling should be directed towards the identified factors, which for this age group are usually diet, acidic drinks and habits associated with the consumption of acidic products, such as swishing, swilling and frothing of acidic drinks. Twice daily use of fluoride toothpaste containing 1,450ppm F is recommended. Monitoring the condition involves recording the teeth, surfaces and extent (enamel or dentine) of the toothwear present. Photographs of the affected teeth should also be taken, if possible. When identified at an early stage, as shown in these photos, the aim is to encourage lifestyle changes to stabilise the condition and limit progression. If the condition progresses, despite improved self-reported changes, there may be an underlying medical condition or eating disorder, which would require referral for further investigation.

# The management of dry socket/ alveolar osteitis

## Abstract

Dry socket/alveolar osteitis is a very debilitating, severely painful but relatively common complication following dental extractions. Its incidence is approximately 3% for all routine extractions and can reach over 30% for impacted mandibular third molars.

A number of methods have been suggested in the literature as to how this condition may be prevented and managed. Most of these suggestions are empirical and not evidence based.

This paper is a review of the literature on dry socket. The results of an audit carried out in the Dublin Dental School and Hospital are also presented and a suggestion is made as to how best this painful condition may be managed.

Our audit showed that a wide range of treatments are being used in the treatment of dry socket: rinsing of the socket with chlorhexidine (74%) or saline (26%); placement of a non-resorbable obtundant dressing (56%); and, instruction in home rinsing of the socket with chlorhexidine (44%).

This condition is one of the most examined topics in dentistry and is currently being researched in the Dublin Dental School and Hospital. Over the years little progress has been made in establishing firm conclusions as to how best dry socket should be managed. Our recommendations are based on a review of the literature, being the best available evidence on which to base our clinical practice.

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## Introduction/review of literature

Alveolar osteitis, also known as dry socket, is a severely painful complication arising between one and three days post extraction. It is very common. The incidence of dry socket ranges from 0.5-5% for all routine extractions, but can reach up to 38% for extractions of impacted mandibular third molars.[1,2]

Blum (2002) described alveolar osteitis as being the presence of "postoperative pain in and around the extraction site, which increases in severity at any time between one and three days after the extraction, accompanied by a partially or totally disintegrated blood clot within the alveolar socket, with or without halitosis".[3]

A localised fibrinolysis (resulting from conversion of plasminogen to plasmin, which acts to dissolve fibrin crosslinks) occurring within the socket and subsequently leading to loss of the blood clot is believed to underlie the pathogenesis of alveolar osteitis.[4] There are many

contributing or risk factors reported in the literature, which act together to precipitate a dry socket.

Bacteria are cited to play a role in the breakdown of the clot.[5] This is supported by an increased incidence of dry socket being seen in patients with poor oral hygiene, higher pre- and postoperative microbial counts in particular anaerobic bacterial counts and, in the presence of periapical infection, pericoronitis or periodontitis pre extraction.[6,7]

Nitzan *et al.* (1983) proposed, in particular, the role for anaerobic bacteria, especially *Treponemma denticola,* which showed plasmin-like fibrinolytic activity *in vitro*. Although bacteria may play a role, no direct cause–effect relationship has been demonstrated between bacteria and dry socket.[8]

Difficulty of extraction or trauma during extraction has also been postulated as a major causative factor. Difficult extractions tend to be in older denser bone, which may have a decreased vascularity and a greater propensity to traumatic thrombosis of the blood vessels. Birn (1973) proposed that trauma during the removal of a tooth leads to a localised inflammation of the socket with accompanying release of tissue activators, which act to increase the levels of plasmin in the socket, leading to lysis of the blood clot.[4] A more traumatic extraction leads to increased release of these activators. These tissue activators also release kininogenase enzymes and bradykinins, which play a key role in pain generation. However, others believe that trauma during surgery results in delayed wound healing due to traumatic thrombosis of blood vessels and hence decreased tissue resistance with resultant wound infection. There is a reported inverse relationship between operator experience and the incidence of dry socket.[5] Surgical extractions in comparison to non-surgical extractions are reported to result in a ten-fold increase in the incidence of alveolar osteitis, which may be due to the increased trauma associated with surgical extractions.[9]

A consistent relationship between smoking and dry socket is reported in the literature. Following extraction, tobacco smokers demonstrate reduced filling of the wound with blood and an increased incidence of dry socket.[10] This is thought to be due to the vasoconstrictive activity of nicotine, which acts to reduce perfusion in the area.

Dry socket occurs more frequently in females than males, pointing to a possible hormonal cause. Sweet and Butler (1978) found the incidence of dry socket to be 4.1% in females versus 0.5% in males.[11]

The incidence of dry socket was reported to be similar between males and females prior to 1960. However, after this time there was a reported increase in females taking oral contraceptive medication. Oestrogen in oral contraceptives has been shown to increase plasma fibrinolytic activity (due to increased plasminogen levels) and it is hypothesised that this may contribute to instability of the blood clot in the socket. It has been suggested that extractions should be carried out on days 23-28 of the oral contraceptive tablet cycle, when oestrogen levels are at their lowest, so as to reduce this effect.[12] Similarly, in a recent prospective study looking at risk factors for the development of dry socket in a Nigerian population it was found that avoidance of surgery on days one to 22 of the menstrual cycle may reduce the incidence of dry socket.[13] Garcia *et al.* (2003) found that in a study of 267 women, 87 of whom were taking the oral contraceptive pill, dry socket occurred more frequently in those taking oral contraceptives (11%) than in those not taking oral contraceptives (4%).[14]

Dry socket rarely occurs in those younger than 20 years, which may be due to the greater bone elasticity, a better blood circulation and/or a more efficient healing capacity of bone in younger patients. It occurs most frequently between 20 and 40 years of age, which may be confounded by an increased number of third molar extractions carried out and a greater prevalence of smoking in this age group.

It was previously thought that the use of local anaesthetic with vasoconstrictor may lead to increased risk of developing alveolar osteitis post extraction due to the temporary local ischaemia caused by the vasoconstrictor. However, it was found that this ischaemia lasts for approximately two hours and is then followed by a reactive hyperaemia.[2,4] This contests the role of vasocontrictors in local anaesthetic in the development of alveolar osteitis, which is currently accepted to be inconsequential.[1,15]

Inadequate irrigation following removal of the tooth has been reported to be associated with increased incidence of dry socket. This was considered, possibly, to be due to contamination of the socket by bacteria and the reduction of this by high-volume lavage of the socket. This is no longer held to be true as bacteria are not thought to be the cause of a dry socket.[1,5]

## Signs and symptoms

Following removal of the tooth, patients report an initial improvement or reduction in pain experienced over the first 24 hours and then subsequently go on to develop a severe, debilitating, constant pain that continues through the night, becoming most intense at 72 hours post extraction. It can be associated with foul taste and halitosis. The pain responds poorly to over-the-counter analgesic medication. Clinically, an empty socket (lacking a blood clot) with exposed bone is seen. The socket may be filled with a mixture of saliva and food debris. A slough is also sometimes present. The adjacent gingivae tend to be red, inflamed, tender and oedematous. There is generally no evidence of suppuration, swelling or systemic infection such as a fever or systemic upset.

## Prevention

As there is still uncertainty surrounding the aetio-pathogenesis of dry socket, this condition is difficult to prevent. The dentist should ask preoperatively whether or not the patient has had a dry socket previously as some patients appear to be more susceptible than others. The patient should also be advised not to smoke for at least 48 hours post extraction.

It was postulated that the use of gauze soaked in Whitehead's varnish sutured into the socket post surgery would reduce the incidence of postoperative discomfort, haemorrhage and swelling.[16] This is then removed one week postoperatively. Unfortunately, a large number of patients would receive unnecessary treatment if this was routinely carried out.

There is also evidence to support the use of a 0.12% chlorhexidine rinse prior to the extraction and one week post extraction to prevent the occurrence of dry socket following tooth extraction. In a prospective, randomised, double-blind placebo-controlled study, this regime was associated with a 50% reduction in alveolar osteitis compared to the control group.[17]

Field *et al.* (1987) similarly reported a significant reduction in the incidence of dry socket following irrigation of the gingival crevice and a two-minute mouth rinse with 0.2% chlorhexidine digluconate immediately prior to removal of the tooth, in comparison to the use of no irrigation or the use of saline as the irrigant.[18]

The placement of 0.2% chlorhexidine gel in the socket at the time of surgery was also shown to reduce the incidence of dry socket in a randomised, double-blind study.[19]

The use of both systemic and topical antibiotics has been shown to reduce the incidence of dry socket.[3] Systemic penicillins, clindamycin and metronidazole, and topical tetracycline powder have all been shown to be effective.[20,21,22] Preoperative administration of antibiotics is more effective in reducing the incidence of dry socket than when given postoperatively.[20,23] Ren and Malmsrom (2007) showed in a meta-analysis of 2,932 patients that antibiotics reduce the risk of alveolar osteitis and wound infection only when the first dose was given before surgery.[24] The reason for the reduction in incidence of dry socket following preoperative administration of antibiotics is unclear as infection is not believed to be of significance in the pathogenesis of a dry socket, although a reduction in bacterial count does decrease the incidence.

Although antibiotics may decrease the incidence of dry socket, antibiotics should not be used in preventing or treating dry socket in a non-immune-compromised subject, due to the potential for development of resistant strains to the antibiotics and other side effects such as hypersensitivity.[3,20,23,24]

## Management

Dry socket is a self-limiting condition. However, due to the severity of pain experienced by the patient, it usually requires some symptomatic treatment.

The range of treatments for a dry socket include treatments directed locally to the socket, including: irrigation of the socket with a 0.12-0.2% chlorhexidine rinse and instructing in home use of a syringe for irrigation; placement of a self-eliminating dressing such as Alvogyl (containing eugenol, butamben and iodoform); placement of an obtundant dressing such as zinc oxide, eugenol and lidocaine gel; or, a combination of these therapies and, where appropriate, the prescription of systemic antibiotics.

The Royal College of Surgeons in England laid down National Clinical Guidelines in 1997, which were subsequently reviewed in 2004, on how a dry socket should be managed.[25] They suggest the following:

1. In appropriate cases, a radiograph should be taken to eliminate the possibility of retained root or bony fragments as a source of the pain, usually in cases when a new patient presents with such symptoms.
2. The socket should be irrigated with warmed 0.12% chlorhexidine digluconate to remove necrotic tissue and so that any food debris can be gently evacuated. Local anaesthesia may occasionally be required for this.
3. The socket can then be lightly packed with an obtundant dressing to prevent food debris entering the socket and to prevent local irritation of the exposed bone. This dressing should aim to be antibacterial and antifungal, resorbable and not cause local irritation or excite an inflammatory response.
4. Patients should be prescribed non-steroidal anti-inflammatory drug (NSAID) analgesia, if there is no contra-indication in their medical history.
5 Patients should be kept under review and steps 2 and 3 repeated until the pain subsides and the patient can then be instructed in irrigation of the socket with chlorhexidine digluconate 0.2% with a syringe at home.

The level of this evidence is quite low. These guidelines are based only on expert opinions and clinical experience.

Traditionally, it was suggested that bleeding should be encouraged in the socket; however, this is no longer thought to be necessary and only serves to increase pain.[15,26]

It is widely accepted that systemic antibiotics should not be prescribed for the treatment of a true dry socket as they have no additional advantage over local treatments directed to the socket in a non-immune-compromised patient.[1,26,27]

The irrigation of the socket with warmed 0.12% chlorhexidine digluconate and instructing the patient in home use of the monoject syringe with chlorhexidine should be part of this treatment.

The aim of placing an obtundant dressing, most commonly made up of a cotton pellet, zinc oxide powder, eugenol and lidocaine 5% topical gel, is to ease the pain experienced by the patient and is supported by some.[26] However, it is important to remember that such a non-resorbable dressing is a foreign body in the socket and will delay healing.[3] The eugenol is also reported to cause local irritation and bone necrosis.[28] A similar dressing available commercially is Alvogyl (non-resorbable) containing eugenol, butamben and iodoform. The eugenol acts as an obtundant and butamben is a topical local anaesthetic, while the iodoform, an antimicrobial, aims to eliminate any low-grade infection that may be present. Alvogyl is reported to be self-eliminating, as it does not adhere as tightly to the socket as the dressing described above. However, if any such dressing is to be used the patient must be recalled at least every two days to assess the pain, possibly replace the dressing and ultimately remove the dressing when the symptoms have subsided sufficiently.

There is no definitive verdict on the most effective intra-alveolar dressing or treatment method for a dry socket. Indeed, a protocol has been submitted to the Cochrane Library to ascertain this based on the best available evidence.[29]

## Audit

The audit was carried out in the Accident and Emergency Department of the Dublin Dental School and Hospital. A questionnaire was

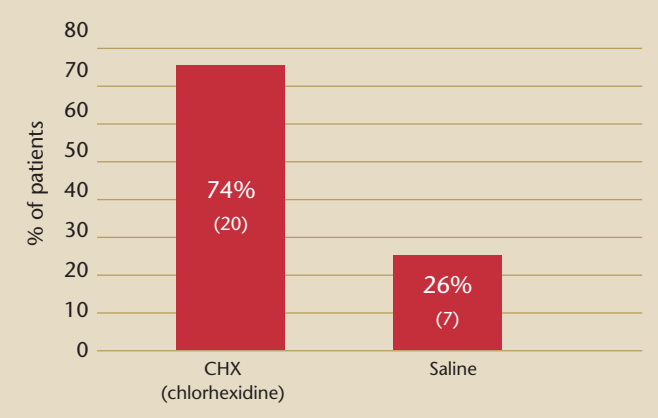


*FIGURE 1: Chlorhexidine was the most commonly used irrigant.*

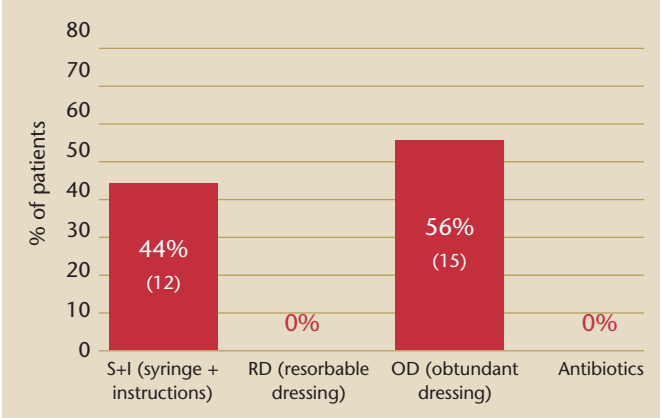


*FIGURE 2: Treatments provided following irrigation of the socket.*

formulated, which included a number of questions pertaining to the source of the dry socket cases, the length of time between presentation and onset of symptoms, the symptoms experienced by the patient, and the method of treatment enlisted by the dentist treating the case. The treating dentist was asked to complete the survey to record the treatment carried out.

The questionnaire was designed to determine the number of true dry sockets. It was possible following education and training of the dentists working in the Accident and Emergency Department to determine this by the signs and symptoms present and thus to differentiate it from a spreading infection.

The presence of pain, altered taste, malodour, food impaction, a slough and a socket devoid of a clot all indicated a dry socket. The recording of the patient's temperature, presence of any extra-oral or intra-oral swelling, trismus and any effect on the patient's airway or floor of mouth was used to eliminate the possibility of the case being a spreading infection rather than a dry socket/localised alveolar osteitis.

The next section of the questionnaire dealt with what treatment was provided. This was divided into treatments localised to the socket and whether or not antibiotics were prescribed. Treatments localised to the socket may have been irrigation with saline or chlorhexidine, giving home instructions on rinsing of the socket, dressing the socket with a resorbable dressing, or the placement of an obtundant dressing. The questionnaires were collected and the results collated.

## Results

A total of 24 cases of dry socket were recorded in the six-month period between October 2009 and March 2010. Of the 24 cases, six resulted from extractions carried out by the patient's general dental practitioner and the remaining 18 cases resulted from extractions carried out within the Accident and Emergency Department of the Dublin Dental School and Hospital. During this time, 517 (495 simple, 22 surgical) teeth were removed in the Accident and Emergency Department of Dublin Dental School and Hospital, giving a possible incidence of 3.5%. Of these 18 cases of dry socket, three resulted from surgical extractions and the remaining 15 resulted from simple extractions. The time between extraction and onset of symptoms ranged from one to three days post extraction. The time between the onset of symptoms and the presentation of the patient was on average four to six days.

All patients presenting had severe pain, the severity of this ranging from seven to 10 as measured by the visual analogue scale, scored with 10 as a maximum. Eighteen (70%) had halitosis and 25 (94%) of the cases experienced an altered taste. All cases showed the presence of a slough and the presence of food impaction was recorded in 20 (74%) of the cases.

The temperature was not recorded by any of the treating dentists, as this test was not indicated due to the lack of systemic symptoms. There was no extra-oral or intra-oral swelling evident in any of the cases and the airway and floor of the mouth also remained unaffected. The range of movement recorded ranged from 37-46mm, which would indicate that none of the cases suffered from limited movement or trismus.

The most common treatment provided was irrigation of the socket with a 0.2% chlorhexidine digluconate rinse, with 20 patients (74%) receiving this treatment (**Figure 1**). The remaining seven (26%) chose saline to rinse the socket. However, in only 12 cases (44%), the patient was provided with a syringe and given instructions in home rinsing with chlorhexidine. A non-resorbable obtundant dressing was placed in 15 of the cases (56%). No resorbable dressings were placed, as these are currently unavailable in the Dublin Dental School and Hospital. Finally, no antibiotics were prescribed in any of the 27 cases (**Figure 2**).

## Discussion

The results of the audit suggest that the best form of management for a dry socket remains unconfirmed. Indeed, there is a lack of evidence to support one treatment method over another.

In aiming to reduce the incidence of dry socket, each patient's risk of developing dry socket should be assessed pre extraction and any preventive measures should be implemented, such as avoiding smoking pre and post surgery, and an atraumatic surgical technique with the use of copious irrigation of the socket. The prophylactic placement of any dressing in the post-extraction alveolar socket is not supported by the literature and should not be carried out.

In preventing the occurrence of dry socket, a systematic review of the literature found that rinsing with chlorhexidine on the day of the

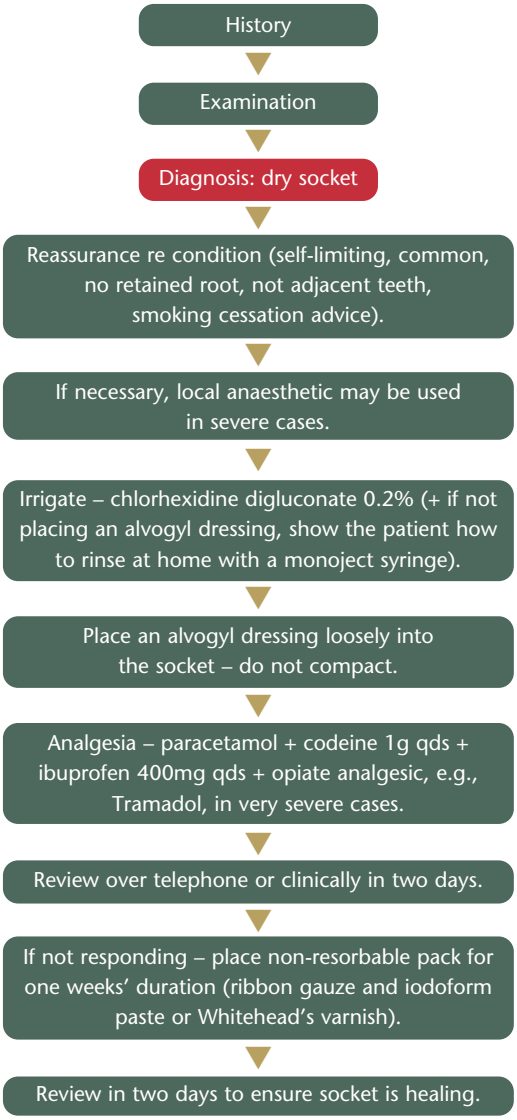


*FIGURE 3: Our recommendations.*

*FIGURE 4: Dry socket.*


*FIGURE 5: Monoject syringe.*


*FIGURE 6: Alvogyl.*

extraction and for seven days post extraction resulted in a reduction in the incidence of dry socket.[30]

A recent meta-analysis of the available literature suggests that although 0.12% chlorhexidine rinse has demonstrated effectiveness in reducing the incidence of dry socket, 0.2% chlorhexidine gel applied to the socket every 12 hours for seven days post extraction is the most effective therapeutic option to prevent dry socket. It indicates that further studies are required to compare the effectiveness of a 0.12% versus a 0.2% chlorhexidine rinse.[31]

In managing a dry socket, chlorhexidine has been shown to be a more effective irrigant than saline and so irrigation of the socket and instruction in home use of a syringe with chlorhexidine should form the mainstay of managing cases of dry socket.[13,14,32]

The placement of a non-resorbable obtundant dressing such as zinc oxide and eugenol will relieve pain but cause bone necrosis and delay socket healing. Such a dressing should not be placed in managing dry socket, as these dressings are quite adherent to the socket and tend not to be eliminated. They must be removed. A dressing such as Alvogyl is self-eliminating and safe.

Antibiotics should not be prescribed in the treatment of dry socket unless the patient is systemically toxic, immune-compromised, or there is a risk of developing osteomyelitis.

The prescription of analgesics is appropriate and necessary. A short course of NSAIDs and a preparation of paracetamol with codeine is recommended.

We present an algorithm (**Figure 3**) based on a review of the literature, clinical practice and our audit. These recommendations are under study at present.

## Conclusion

Dry socket is a self-limiting condition, the cause of which remains elusive. Management is aimed at relieving the patient's pain until healing of the socket occurs. Healing is facilitated and accelerated through reducing the insult to the wound by food debris and microorganisms, by irrigation of the socket with chlorhexidine, followed by placement of Alvogyl dressing or, if unavailable, instructing the patient in home use of a syringe for irrigation of the socket until the socket no longer collects debris, and the prescription of potent oral analgesics. The patient should be kept under regular review to ensure that the socket is healing, especially if a dressing has been placed.

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# Fire safety in the dental practice: a literature review

## Précis

The aim of this literature review is to establish how fire safety regulations relate within the dental practice setting, in accordance with current legislation.

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## Introduction

Fire is a small word with a serious meaning. Few persons have had first hand experience of the consequences of a serious fire and as such most people do not realise the devastation, destruction and damage to human life and property that fire can cause.

The outbreak of fire poses a significant threat to all persons within a building, and it can also have serious financial implications. In addition, fire in the workplace is likely to represent a major psychological upheaval that is potentially distressing for both the employer and employees.[1]

Given the potentially devastating consequences, there is a significant onus on all business proprietors, and thus dental practitioners, to consider their responsibilities in terms of fire safety and implement precautions as appropriate.

## Legislation

The main legislation in the Republic of Ireland governing fire safety in the workplace is the Fire Services Act 1940, and 1981:

"It shall be the duty of every person having control over premises to take all reasonable measures to guard against the outbreak of fire on such premises, and to ensure as far as is reasonably practicable the safety of persons on the premises in the event of an outbreak of fire."[2]

The Building Control Regulations 1997-2010 define a legislative requirement for dental practices to obtain a fire safety certificate from the local building control authority. Amendment of this legislation in June 2006 (Part B Building Regulations) includes a specific section on fire safety. These requirements must be observed if extending or refurbishing a dental practice. Alterations to the practice must allow provision of an adequate means of escape to a place of safety outside the building in the event of an emergency. The design and construction of all new premises or extensions should include measures to minimise the risk of both internal spread of fire, and external spread to neighbouring buildings.[3]

Furthermore, the European Union directives have, as part of a series of health and safety regulations, outlined new fire precautions (workplace) regulations, which extend the duty of an employer to carry out a fire risk assessment of the workplace, and to take appropriate action to either reduce the risk to persons in case of fire, or implement procedures to counter risks.[4]

## Inspection

Enforcement of fire precautions legislation in the Republic of Ireland rests with 37 local fire authorities, governed at local council level.[5] Under the provisions of the Fire Services Act, 1981, authorised inspectors from the fire services can visit and inspect any building, including dental practices, within their jurisdiction. Responsibility for complying with fire safety regulations rests with the practice owner or employing dentist as the 'responsible' person.

Over the course of a fire safety inspection the assessor may ask for any of the following details:

- the number of employees or occupants in the building;
- the purpose of any room or area in the building;
- the materials used in the building's construction; and,
- any official documents relating to the building's safety.

The inspectors are permitted to bring any necessary equipment with them into the practice and to examine or test any heating, lighting or ventilation systems, and any substances used or stored within the premises.[5] If the inspector is not happy with their findings, they may make an application to the High Court for an order requiring the removal, alteration or making safe of any structure, fitting or piece of equipment. Should such an order be granted, its terms are legally binding on the practice owner. Failure to comply with fire safety requirements can lead to prosecution, with offenders facing up to six months' imprisonment and, in extreme cases, closure of the practice.[6]

## Risk assessment

All dental practices have a duty under the Health and Safety at Work Act 2005 to continuously provide safe working conditions compatible with the provision of proper services to patients. Consequently, risk management is as important as any other area in practice.[7]

Every employer, or person responsible for common areas of buildings in multiple occupation, has an absolute duty to carry out a fire risk assessment. This should be separate from the overall practice health and safety assessment. Although they will provide advice, the local fire authority will not carry out fire risk assessments for individual businesses.

A fire risk assessment is basically a structured look at the workplace activities and the workplace itself, to allow identification of hazards and assessment as to whether existing precautions are satisfactory, or need to be updated. There are five steps in the process:[8]

1. Identify potential fire hazards.
2. Identify who is at risk should a fire occur.
3. Evaluate the risk caused by each hazard and decide if existing fire precautions are adequate to control or eliminate the risk. Carry out additional control measures as necessary.
4. Record the findings and inform your employees about the actions you have taken as a result.
5. Review your fire risk assessment periodically, or if your situation or workplace practices change.

For fire to occur there must be a source of ignition, fuel and oxygen. If all three are present and in close proximity in the workplace, then the risk of fire could increase. In the average workplace, fire hazards will fall into the first two categories, while the oxygen will be present in the air in the surrounding space.[9] However, in the dental setting oxygen is stored as a gas in portable cylinders and thus presents a potential hazard.[10] Potential sources of ignition likely to be found in a dental practice include naked flames (Bunsen burners), lighting and electrical equipment. Anything that burns is a potential fuel and of particular note are dental chemicals and solvents, which should be stored in small quantities in sealed containers (**Figure 1**).[11]

If the practice employs five or more staff, then the significant findings of the fire risk assessment must be recorded. All employees must be informed of the findings, including those identified as being at risk. More importantly, the record must show whether the existing control measures are adequate and, if not, what further action is required to reduce the risk to an acceptable level.[9]

It is important to remember that fire risk assessment is a continuous process and as such must be monitored and audited.[9]

## Fire precautions

### Provision of adequate means of escape in the event of a fire or emergency

The responsible person must make sure that everyone on the premises can escape safely in the event of a fire-related emergency. This includes employees, visitors, patients, contractors and cleaners, including part-time staff. Particular consideration should be given to those who may have a disability or need special help.[12] An exit route is defined as a continuous and unobstructed path from any place in the workplace to the outside of the building.

Every dental practice should have at least two exit routes, although the exact number required will be dependent on the size of the premises. If the persons present within a working practice can reasonably be expected to congest and render unsafe two exit routes, additional exits may be required. For example, dental practices with more than two or three stories with multiple operational surgeries, and thus high patient turnover, may consider an external escape route. Generally, in determining the design for means of escape, every part of the building should be within a reasonable distance from either an exit to a place of safety at ground or access level, or an exit to a protected stairway that leads to a place of safety.[13] Advice on this matter can be taken from the local building authority. Lifts, portable ladders or self-rescue apparatus are not acceptable for means of escape in the case of fire. Works that comply with the provisions of the Building Regulations for means of escape and structural fire precautions will be satisfactory for those related aspects regarding fire certification.[14]

### Provision of adequate means for protecting the means of escape

The means of escape must be clearly marked with the provision of exit signs and notices, which should be made of flame-retardant materials. Signs should include a pictogram so that they are self-explanatory for employees and patients. In a multicultural environment, care should be taken to ensure that the pictogram in use represents the same safety message to all the cultural groupings.[15] The displaying of safety signs should not be taken lightly. Where the incorrect sign is displayed or the sign is not visible when needed, disaster may result. Therefore, it is mandatory to mark all doors that are part of the exit route with a large, legible sign, as well as placing notices at various points along the route to direct people toward the building exit that leads to a place of safety outdoors. The next sign should always be visible to anyone travelling along the exit route. Ideally, an emergency safety

| | HAZARD | CONTROL MEASURE |
|---|---|---|
| **Source of ignition** | Fixed electrical installations | A competent person should regularly check the fixed electrical installation. |
| | Portable electrical appliances, e.g., light curing unit, amalgamator | A competent person should examine and test all portable electrical appliances within the time period recommended by the manufacturer. |
| | Trailing leads and adaptors | Reasonable limitations on the use of trailing leads and adaptors. |
| | Smoking | A no smoking policy should be in place in accordance with the 2007 ban on smoking in the workplace. |
| | Radiation machines | Ensure that equipment meets all appropriate standards and is serviced and maintained according to the manufacturer's recommendations. |
| | Bunsen burners | Ensure that a naked flame is not left unattended. |
| **Sources of fuel** | Combustible materials | Combustible materials must not be kept in excessive quantities. Fuel should not be allowed to accumulate in places where it could be subject to arson. |
| | Waste | Waste should be stored in closed fire-resistant containers or in a closed fire-resistant area and disposed of regularly. |
| | Furniture and fittings | All furniture must be in good condition and any foam filling covered. |
| | Flammable gas cylinders, e.g., oxygen, nitrous oxide | Store in line with the manufacturer's guidance. |
| | Heating systems | Gas- and oil-fired boilers should be serviced regularly. |
| **Sources of oxygen** | Oxidising chemicals, e.g., hydrogen peroxide, sodium hypochlorite | These must be stored in accordance with the manufacturer's instructions. |
| | Oxygen cylinders | ▸ Use a purpose-built trolley to transport them;<br>▸ Keep cylinders chained or clamped to prevent them falling over;<br>▸ Store in a well ventilated storage area;<br>▸ Check regularly to ensure equipment is leak-tight;<br>▸ Always open valves slowly; and,<br>▸ Use in accordance with the manufacturer's guidance. |
| | Ventilation systems | Doors and windows should be kept shut when the premises are not occupied. |

*FIGURE 1: Potential fire hazards within the dental practice.*

lighting system should be in place to illuminate the exit route should a power failure occur.[8] It is mandatory to ensure that all corridors, stairways, common escape routes and fire exit doors are kept clear at all times. All doors through which persons may have to pass to evacuate the premises should only be fastened so that they can be easily opened by an easy opening device without the use of a key. All fire doors leading to the means of escape should be kept closed when not in use.

### Provision of means for fighting fire

If fire breaks out and trained staff can safely extinguish it using suitable fire-fighting equipment, the risk to others will be removed. All dental practices should have suitable fire-fighting equipment. The water-type extinguisher or hose reel is the most useful fire-fighting equipment for general fire risks. In dental practice, a minimum of one water-type extinguisher per floor is recommended; however, where fire sources may be, for example, electrical, other types of extinguishers should be considered.[12] Fire extinguishers should be sited on exit routes, preferably near to exit doors or, where they are provided for specific risks, near to the hazards they protect. Location of fire-fighting equipment should be easily identifiable with appropriate safety signs. Maintenance and testing of fire safety equipment is mandatory, and should follow the manufacturer's recommendations.[8]

### Provision of means for raising fire alarm

In the event of a fire, it is essential that everyone in the workplace is alerted as quickly as possible. Early discovery will allow people to escape safely before the fire takes hold and blocks escape routes or makes escape difficult. Although in most cases fires are detected by people in the workplace, who then subsequently raise the alarm, a fire may break out in an unoccupied part of the practice and thus a suitable fire detection system should be installed.[8] As a general rule, this should comprise an automatic manual electric alarm system, with both break glass call points placed at emergency exit points, and smoke detection system.[13] Smoke detectors should be provided in common areas and high hazard zones such as operational surgeries and sterilisation areas. The warning needs to be distinctive, audible above other noise and recognisable by everyone. Fire detection devices should be regularly checked to ensure their continued good working order.

### Access facilities for the fire brigade

In accordance with health and safety legislation, a safe place of work must have a safe means of access and egress. In an emergency situation this will allow access for emergency vehicles and equipment, and ensure that fire fighters are able to operate in reasonable safety.[5]

## Staff training and policies

If staff members are not trained in how to identify and eliminate fire hazards, they can create situations that put themselves, other staff and patients at risk of fire death or injury.

With respect to fire safety, training is critical for owners and staff of small facilities, such as dental practices, because they are responsible for all facets of fire prevention and protection.[16] Training should be carried out to ensure that employees understand the actions to be taken in the event of fire, as well as precautions to reduce the possibility of a fire occurring, such as housekeeping and safe working practices.[9] Courses are available to instruct on the use of fire-fighting equipment, as well as basic fire safety awareness and risk management, and must be strongly considered for all staff in dental practice, including cleaners and part-time employees. These are provided by various independent health and safety consultancy firms nationwide. Training should be based on written instructions and should be provided by a competent person, ideally at induction and at least once a year in each period of 12 months.[17]

**In the event of a fire, no matter how small, the following instructions and procedures MUST BE ADHERED TO:**

- Raise the alarm using the nearest 'Break glass' call point
- Dial 999 – to call the fire brigade
- Remain calm and evacuate the premises
- **DO NOT** attempt to fight the fire unless it is safe to do so
- **DO NOT** use lifts
- **DO NOT RE-ENTER** the premises until *told* it is safe to do so by a fire brigade officer
- Report to assembly point – front of building

*FIGURE 2: Example of an emergency evacuation procedure.*

In accordance with health and safety guidance, each practice must have in place a fire policy statement, both to reduce the risk of fire starting and to ensure that all staff members are familiar with the building's emergency fire evacuation procedures. This should be displayed clearly in public areas, including the dental surgeries and waiting room.[12] Each employee should be given a copy of the policy. Consideration should be given to any outside contractors who may be required to carry out potentially hazardous works as part of ongoing practice maintenance. As they may not be as familiar with the premises as permanent employees, they cannot be expected to know the correct actions to take in the event of a fire. Every effort must be made to make certain that such individuals are aware of the risks involved with their work.[17]

The main responsibility for dealing with a serious outbreak of fire lies with the fire brigade. However, all staff should be familiar with and be confident that they can carry out the practice's pre-arranged emergency evacuation procedures in the event of an emergency occurring. Periodic fire drills should be carried out, preferably every six months but at least once a year.[17] Details of the drill may be recorded in a fire safety logbook kept available for inspection as part of the risk assessment.[8] Within the practice setting one person should be responsible for organising fire instruction, training and drills (**Figure 2**).[17]

## Conclusion

An employing dentist has a general duty to ensure, so far as is reasonably practicable, the health, safety and welfare of employees while at work.[12] This duty of care extends to patients and visitors who may be on the premises. Ensuring a risk-appropriate standard of fire safety is mandatory as part of this duty of care. Appropriate standards can be achieved by comprehensive risk assessment, implementation of suitable fire precautions and detailed staff training.

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# Cleft-affected children in Mayo: 1999-2007

## Abstract

The aims of this study were to investigate the medical and dental care of children born in Mayo with cleft lip and/or palate in the period 1999-2007. Thirteen subjects were identified – nine males and four females. Galway was the main locus for cleft surgical referral and care, with 10 subjects receiving treatment by the same surgeon. A total of 54% of subjects required ENT care, with 62% receiving speech and language therapy. DMFT and dmft were zero and 0.037, respectively. Mean age at first dental visit (to a private or community dental clinic, specialist paediatric dental practice or Western Health Board orthodontic service) was 21 months. This represents progress in the objective of early access and provision of dental care for this special care dentistry needs group.

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## Introduction

Cleft lip and/or palate (CL/P) malformations are the most common congenital abnormalities of the craniofacial region.[1-5] The incidence of CL/P varies according to race/ethnicity, gender, family history, socio-economic status and cleft type.[2,6] It is more common among Indian and Oriental populations (1.7-2.3:1,000), and least common among Afro-Caribbeans (0.3-0.6:1,000).[2,7] In Caucasians the reported incidence varies from 1:1,000 to 1:600 live births.[1,3,5,7] The aetiology of cleft pip (CL) with or without cleft palate (CP) is complex.[4] It is known that both genetic and environmental factors, acting either independently or in combination, are responsible for facial clefting.[6,8]

The population of Co. Mayo, Ireland, was 111,524 in 1996, increasing to 115,583 in 2002, and rising further to 121,353 in 2006.[9] In the period of this study, the population of Mayo increased by 8%. The birth ra te in Mayo rose from 1,410 live births in 1999 to 1,839 in 2007.[9,10] The Irish 2006 Census recorded ethnic diversity within each county for the first time. In 2006, Mayo recorded a non-Irish population of 11,579, of which 8,031 were Caucasian. It also recorded a population of 404 (0.3%) black people, 701 (0.57%) Asian people and 2,443 (2%) people of mixed or unstated ethnic background.[9]

## Aim

The objectives of this study were to identify and classify all cleft-affected children born in Co. Mayo, Ireland, between January 1, 1999, and December 31, 2007, and to investigate their access to and receipt of essential medical and dental services.

## Subjects and methods

Dental records centralised at the Mayo General Hospital's Dental Department were reviewed. The first aim was to identify all children born in Mayo with CL/P during the period January 1, 1999, to December 31, 2007. Two clinicians calibrated in WHO dmft/DMFT index protocols carried out the study. Clinical examination of the CL/P children comprised extra-oral and intra-oral examination. This included assessment of

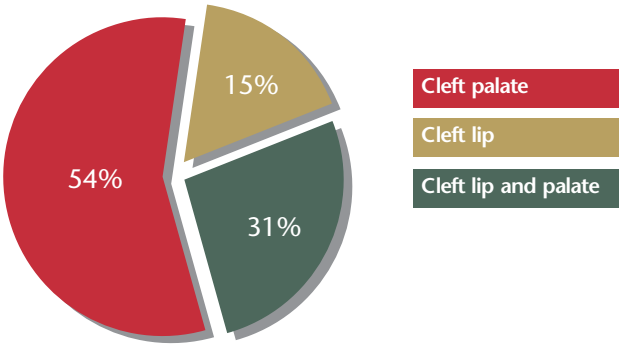


*FIGURE 1: Distribution of cleft types.*

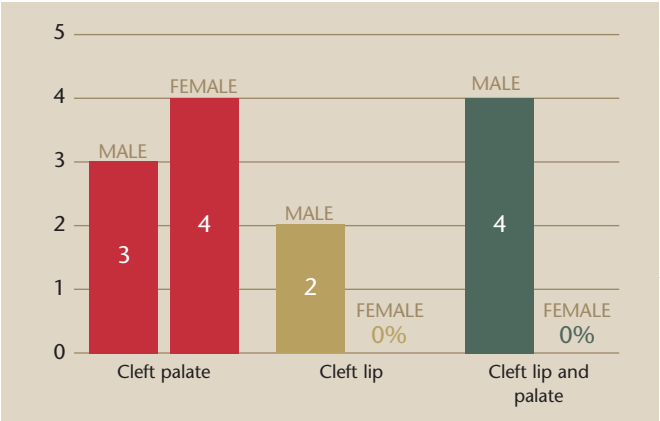


*FIGURE 2: Gender distribution of clefts.*

dental and orthodontic findings, caries, oral health status and occlusion. Where radiographs were available, these were used to confirm clinical findings. A standardised questionnaire regarding the child's general health and previous operative and specialists' treatments was completed. This information was systematically collected by interview with the child's parents. The child's past surgical history, family history, ENT, speech and language history, and past dental history, including first dental attendance, were recorded. Cleft-affected children born outside of the county were excluded from the study.

## Results

Fourteen CL/P children were identified, of which 13 were born and resident in Co. Mayo in the period January 1, 1999 to December 31, 2007. All were Caucasian – nine males (69%) and four females (31%). The mean age at examination was five years and 10 months. The age range was two years and one month to nine years and four months. Four (31%) subjects had CL/P, seven (54%) had isolated CP and two (15%) had isolated CL (**Figures 1** and **2**).

In the isolated CP group (n=7), four patients were female and three were male. A submucous CP was identified in one female subject. In the CL/P (n=4) group, all were unilateral (UCL/P) and male. In this subgroup, there was an equal right-side/left-side involvement. Two subjects, both male, presented with isolated CL. Both were unilateral and left-sided. Three cases were syndromic, of which two were isolated CP and one was CL/P. Three syndromes, namely DiGeorge, Van der Woude and Goldenhar syndromes, had been definitively identified prior to their dental assessment. Systemic abnormalities diagnosed in these cases included hydrocephalus, cranial cyst, septo-optic dysplasia, nystagmus, absent corpus callosum, partial loss of sight, insignificant heart murmur as an infant, pre-auricular skin tags, cervical vertebrae anomalies, fused ribs on right side and macrostomia. A positive family history was found in 31%. Seven children (54%) required ENT treatment, with placement of ventilation tubes on at least one occasion. Four (31%) have continued hearing problems requiring further ENT intervention. Eight children (62%) had received speech therapy in the past.

All cleft surgical care had been provided ouside Co. Mayo. The plastic surgeon responsible for surgical repair was identified in 12 cases. One surgeon based in Galway was responsible for the operative repair of 10 children. A second surgeon based in Dublin was responsible for the care of the remaining two patients. The age at lip repair varied from three to seven months, with an average age at repair of 4.16 months. The mean age of palatal repair was 11 months, with a range of seven months to 16 months.

The age of first dental visit was identified in 11 (85%) subjects. Patient age at first dental visit varied from three months to seven years and one month, with a mean age of 21 months. With two infant subjects awaiting the commencement of dental eruption, the presence of decayed, missing and filled teeth was recorded in 11 children (85%). The mean recorded dmft was 0.037, with six having a zero dmft. Six children were in the mixed dentition. The DMFT for these children was found to be zero. Seven children (54%) had received fissure sealants, three on the permanent molars and the remaining four on their primary molars. Two children presented with an absent congenital permanent maxillary lateral incisor associated with the cleft-affected site. A talon cusp was identified in a maxillary lateral incisor in one child and another child presented with a supernumerary primary maxillary lateral incisor in the cleft-affected site. Incisor classification was used to determine malocclusion. Eleven children had a malocclusion. Five patients were Class III and the remainder Class I. Of the five children with a Class III malocclusion, three had isolated CP and two had CL/P.

## Discussion

Facial clefts can be classified according to type, site, side and extent.[6,11] CL/P infants born in Co. Mayo in the period under investigation (1999-2007) showed no significant difference in cleft type from previously reported international studies. In relation to gender, males are more commonly born with CL or a combination of CL/P, while for isolated CP, females are more commonly affected.[4,5,7] While the number of subjects in this study is small, more males had an isolated CL/P, while more females had an isolated CP. In a previous

study of cleft-affected children born in the Western Health Board region, males predominated in the CL/P group while females predominated in the isolated CP group.[19-21]

A variety of systemic anomalies, which may involve the cardiovascular, musculoskeletal, craniofacial and/or genitourinary systems, have been reported to affect 21-37% of cleft patients.[4,6,12] Three children (23%) in this study had associated systemic anomalies. Middle ear disease and ENT problems in cleft-affected children have been extensively documented.[6] Hocevar-Boltezar[13] demonstrated that ENT aural pathology appeared in almost 66% of children with isolated CP or unilateral CL/P. Early ENT specialist evaluation for cleft-affected children is important.[13] Auditory problems, though minor and confined to otitis media, were found in 54% of subjects, and 31% needed continued ENT care. Cleft-affected children are at risk of developing abnormal speech patterns.[6] In this study, 62% required and received speech therapy to assist with verbal communication.

Dental anomalies are common in cleft-affected patients. These comprise variations in the number of teeth, malformed roots and/or crowns,[6,12] enamel hypoplasia and hypocalcification,[6,14,15] eruption disturbances, natal and neonatal teeth, and ectopic position.[6,14] Teeth in the cleft-affected site may show marked rotations, or retroclination giving rise to crossbite malocculsion.[16] Hypodontia is reported to be significantly higher in cleft patients, with the maxillary permanent lateral incisor the most commonly missing tooth.[16,17] Some 15% of subjects in this study presented with hypodontia, and in all cases this involved the maxillary lateral incisor in the cleft-affected side. There is an increased tendency towards a Class III incisal relationship in cleft patients.[16,19,20] In this study, 38% presented with a Class III malocclusion.

Mayo has one maternity and paediatric centre. In 1999 protocols were established in the Paediatric Department of Mayo General Hospital to ensure that the Community Dental Service is informed of any CL/P birth. Hewson,[19-21] in a study of CL/P children born in Mayo in a 15-year period from 1979-1993, found that the mean age at first dental visit was four years, with a range of six months to 10 years. The mean age of first dental visit of 21 months found in this audit represents progress in the objective of early access and provision of dental care to this special care dentistry needs group. Cleft-affected children are known to have higher levels of dental decay[20] than non-cleft siblings, which may be environmental or genetic in causation.[6,15] Hewson[19] in 1995 found that the mean DMF for 33 cleft-affected Mayo children was 2.7. The dmft and DMFT in this study group was, respectively, 0.037 and zero.

## Conclusions

Isolated CP was the most common cleft anomaly found in children born in Mayo between 1999 and 2007. Dental access and dental treatment were available to patients in Mayo from early childhood. Given a patient mean age of 21 months for the first dental visit, further investigation is desirable to establish the reason for the wide range of age for the first dental visit.

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# Treatment of the avulsed anterior tooth

JENNIFER McCAFFERTY, Paediatric Postgraduate, and ANNE C. O'CONNELL, Senior Lecturer/ Consultant in Paediatric Dentistry, present an overview of this potentially serious dental event.

*FIGURE 1: Avulsed 52 and 61 maxillary incisors and severely luxated 51 in a three year old. Tooth 51 was extracted.*

Dental trauma for any patient is an upsetting and unexpected experience. It can occur at any time and therefore usually presents to a dental practice as an unscheduled event. This fact file discusses dental avulsion, which is one of the few time-dependent dental emergencies. All staff should be able to give urgent advice in response to an avulsion injury. Immediate and appropriate management of dental trauma is critical to the survival of the injured tooth and supporting structures. This simple review may help in giving advice over the phone or when the patient is in the surgery.

## Management

**Primary teeth:** Avulsed primary teeth should **never** be replanted due to the risk of damaging the permanent successor. Traumatised primary teeth frequently become necrotic, causing pain and sepsis for the young patient **(Figure 1)**.

**Permanent teeth:** The International Association of Dental Traumatology (IADT) has published guidelines on the management of avulsed permanent teeth with immature and mature apices.[5] These are now available free at www.dentaltraumaguide.org. The main factors influencing the prognosis of an avulsed tooth are the condition of the tooth, the patient's age and the extent of root development.

The following website offers further information on the management of dental trauma: www.dentaltraumaguide.org.

**Table 1: Avulsion**

| | |
|---|---|
| **Definition** | Tooth avulsion occurs when the tooth is completely displaced from the alveolar socket |
| **Frequency** | Accounts for 0.5-3% of all dental injuries[1] |
| **Aetiology** | Primary teeth: a fall while playing<br><br>Permanent teeth: sports injury or interpersonal violence |
| **Most commonly affected teeth** | Maxillary central incisors |
| **Most common age** | |
| **Primary teeth** | 1.5 to three years, due to lack of co-ordination in motion |
| **Permanent teeth** | Seven to nine years of age – the central incisors are developing and the periodontal ligament and alveolar bone are immature and provide little resistance for extrusive forces[1] |
| **Associated injuries** | ■ Head or bodily injuries<br>■ Soft tissue abrasions and lacerations<br>■ Dental injuries to adjacent teeth<br>■ Alveolar bone fracture |

**Table 2: Examination**

| | |
|---|---|
| **History of injury** | How? When? Where? |
| **Medical history** | ■ Allergies<br>■ Hospitalisation<br>■ Known illness or diseases that may affect treatment<br>■ Tetanus status<br>■ Previous dental injuries |
| **Neurological evaluation** | Medical attention is required immediately if the patient reports loss of consciousness, headaches, nausea or vomiting since the injury. |
| **Extra-oral examination** | ■ Assess for facial tenderness, paraesthesia, bruising or swelling that could indicate a facial fracture<br>■ A maxillofacial or oral surgery referral is necessary if a facial fracture is suspected |
| **Dental examination** | ■ Has the avulsed tooth been located and stored wet?<br>■ How much root development is there?<br>■ Check adjacent and opposite teeth for dental injuries |
| **Biological considerations** | Following an avulsion, the survival of the periodontal ligament (PDL) and pulp is dependent on minimum exposure to air, bacteria and irritants[2,3] |
| **Factors to consider (rationale: promote survival and healing of PDL):** | ■ Contamination of tooth surface<br>■ Extra-oral time (EOT) and, more importantly, the extra-oral dry time (EODT)<br>■ The greater the EOT or EODT, the less favourable the prognosis |
| **Storage medium** (the success of treatment is strongly related to a minimum EODT and an appropriate storage medium to maintain viability of the PDL): | ■ Ideally, the avulsed permanent tooth should be replanted at the time of injury to increase healing potential<br>■ Types of storage media include commercial tissue culture (Viaspan), milk, saliva and saline[4] |

**Table 3: Guidelines for the management of an avulsed permanent tooth.**

| Clinical presentation | Management |
|---|---|
| **1. Avulsed tooth is already replanted** | ■ Clean injured site with saline or chlorhexidine<br>■ Do not remove the tooth, but stabilisation with a splint may be required |
| **2. Avulsed tooth presents in a physiological storage media with an EODT <60 minutes** | ■ Surface contamination on the tooth removed with a stream of saline<br>■ Blood clot removed from socket with a stream of saline<br>■ If alveolar fracture present, it should be repositioned with gentle pressure<br>■ Tooth replanted with gentle finger pressure |
| | **Immature apex:** If available, covering the tooth with minocycline hydrochloride microspheres prior to replanting can double the chance of revascularisation[6] |
| **3. EODT >60 minutes or extended storage in non-physiological media** | ■ Surface contamination and PDL removed<br>■ Blood clot removed from socket with a stream of saline<br>■ Soak tooth in 2% sodium fluoride for 20 minutes[7]<br>■ If alveolar fracture present it should be repositioned with gentle pressure<br>■ Tooth replanted with gentle finger pressure |

**Table 4: Additional management**

| | |
|---|---|
| **Suturing** | ■ Suture gingival laceration close to the cervical area |
| **Splinting** | ■ Apply a flexible splint (0.4mm round steel wire – **Figure 2**)<br>■ Remove after two weeks if EODT <60 minutes<br>■ Remove after four weeks if EODT >60 minutes |
| **Radiographs** | ■ To minimise the EOT, radiographs should only be taken before replanting the tooth if an alveolar fracture is suspected<br>■ Should be taken immediately after the splint is placed to confirm correct position of tooth |
| **Antibiotics**<br>Inconclusive clinical evidence but still recommended under current guidelines[8] | Prescribe doxycycline twice a day for seven days for patients >12yrs<br>Prescribe penicillin for patients <12 years since Tetracycline can cause tooth discolouration<br>**Rationale:** increase periodontal healing |
| **Root canal treatment (RCT)** | **Mature apex**<br>■ RCT should commence within seven to 10 days and a calcium hydroxide dressing should be placed for one month to reduce the development of inflammatory resorption[9]<br>■ Conventional obturation<br>**Immature apex**<br>■ Monitor clinically and radiographically for revascularisation, i.e., continued root development<br>■ If clinical or radiographic signs of pulpal necrosis develop, RCT should commence immediately to reduce the onset of inflammatory resorption<br>■ Apexification is required prior to RCT of immature apices<br>■ If the EODT >60 minutes, RCT can be carried out before replanting or within seven to 10 days of replanting[5] |
| **Postoperative instructions** | ■ Soft diet for two weeks<br>■ Brush with a soft toothbrush for two weeks<br>■ Chlorhexidine mouthwash 0.2% |

*FIGURE 2: Flexible splint.*

**Table 5: Maintenance**

| | |
|---|---|
| **Follow-up** | Clinical and radiographic follow-up should be carried out at the following intervals:<br>■ Two, three and four weeks<br>■ Two and six months<br>■ Yearly for five years |
| **Ankylosis and resorption** | **Inflammatory resorption**<br>■ Can occur if RCT is not commenced within seven to 10 days (**Figure 3**)<br>**Ankylosis and replacement resorption**<br>■ Occurs when the avulsed tooth has an extended EODT or EOT (**Figures 4a and 4b**)<br>■ Clinically, an ankylosed tooth will have a high pitch tone to percussion and radiographically there will be loss of the PDL space<br>■ If ankylosis occurs in children <15 years or infraocclusion of the tooth is >1mm, the tooth should be decoronated to preserve to alveolar bone<br>■ Replacement resorption can occur following ankylosis. The root of the tooth will appear to be progressively replaced by bone on radiograph<br>If any of the above sequelae are noted, further treatment or specialist referral is warranted. |

*FIGURE 3: Periapical radiograph of a right maxillary central incisor with a closed apex one month after being avulsed. The tooth was repositioned and splinted. Root canal treatment did not commence within 10 days and there is evidence of inflammatory resorption radiographically.*

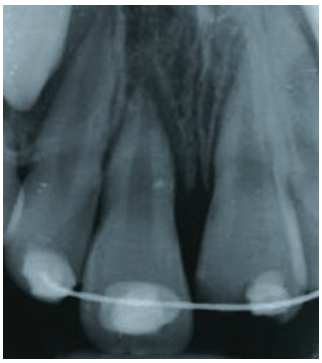

*FIGURE 4a: Background: An eight-year-old boy avulses the upper right permanent central incisor and sustains a complicated crown fracture to the maxillary left permanent central incisor. The extra oral time of 11 was greater than one hour. The PDL was removed and the tooth soaked in sodium fluoride for 20 minutes. The tooth was replanted and a flexible splint placed. The periapical radiograph shows the position of the 11 following replantation.*

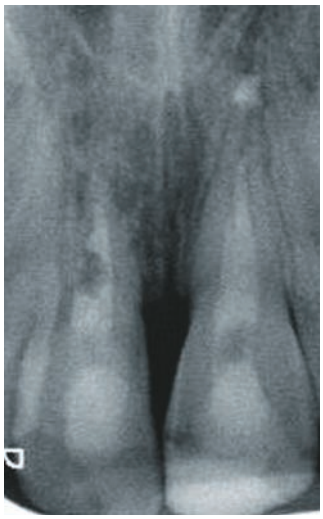

*FIGURE 4b: Periapical radiograph one year following the dental trauma. Tooth 11 is ankylosed and is undergoing replacement resorption.*

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**IDA One-Day Conference**
*January 21* *Croke Park Conference Centre*
Details on page 302.

IDA MEMBERS ONLY

**Metropolitan Branch IDA and Irish Endodontic Society Scientific Meeting**
*January 26* *Hilton Hotel, Charlemont Place, Dublin 2, 7.30pm*
Speaker is Dr Jens Andreasen.

**AEECD Dubai 2012**
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For further information contact info@aeedc.com.

## FEBRUARY 2012

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**Metropolitan Branch IDA – Annual Scientific Meeting: Treating the whole family**
*February 10* *Hilton Hotel, Charlemont Place, Dublin 2*
Starts at 2.00pm with gala dinner available afterwards.

## MARCH 2012

IDA MEMBERS ONLY

**South Eastern Branch IDA – Annual Scientific Meeting**
*March 2* *Kilkenny*
Further details available from IDA House, Tel: 01-295 0072.

**Metropolitan Branch IDA – Scientific Meeting and AGM**
*March 8* *Hilton Hotel, Charlemont Place, Dublin 2, 7.30pm*
Speakers are Dr Andrew Norris and Professor Leo Stassen. The meeting will be followed by the Metropolitan Branch Annual General Meeting.

## APRIL 2012

**Irish Society of Dentistry for Children – Annual Scientific Meeting 2012**
*April 26*
Guest speakers are Prof. Bill Bowen, University of Rochester, NY, on 'Cariology', and Dr Marie Therese Hosey, King's College Dental School, London, on 'Behaviour management techniques'. Further details to follow when available.

**Orthodontic Society of Ireland**
*April 27-28* *Faithlegg House, Waterford*
Speakers are Dr Vince Kokich Jnr on 'Aesthetics, finishing and interdisciplinary treatment', and Drs Albino Triaca, Marco Tribo and Luca Signorelli on 'Surgical Orthodontics'.

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1 Furgang et al, J Dent Res. 2011; 90 (Spec Issue): Abstract 3073.

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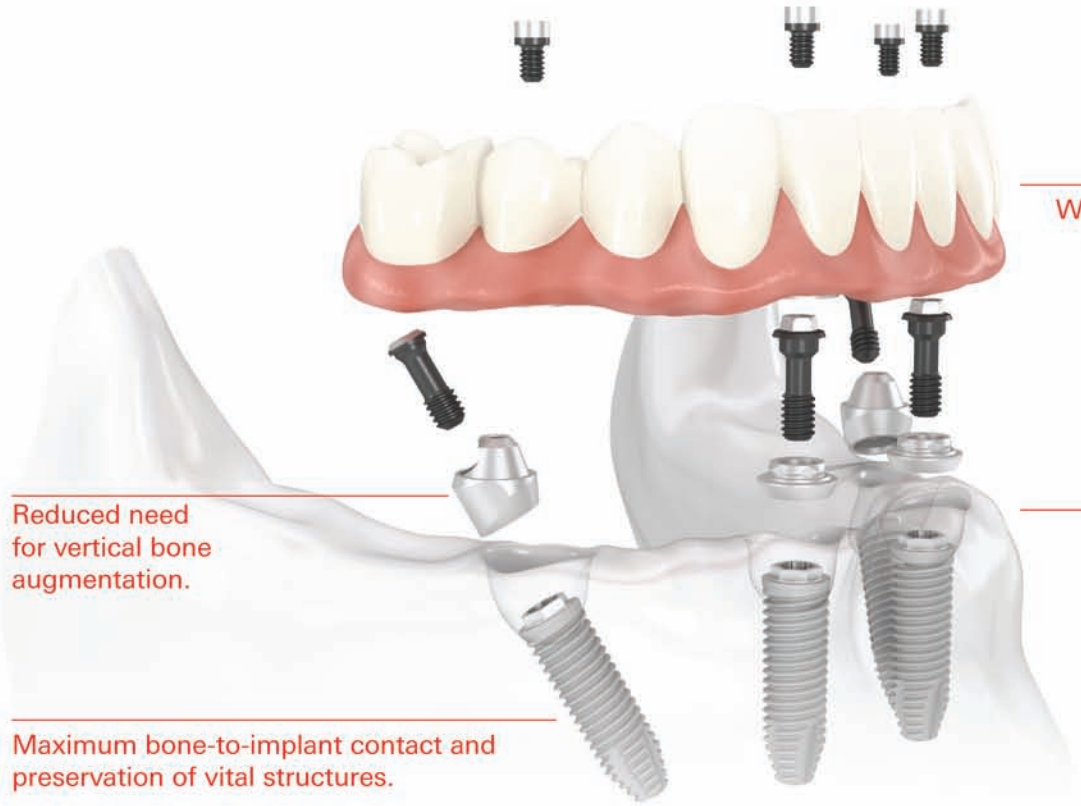

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