

Journal of the Irish Dental Association

Iris Cumainn Déadach na hÉireann



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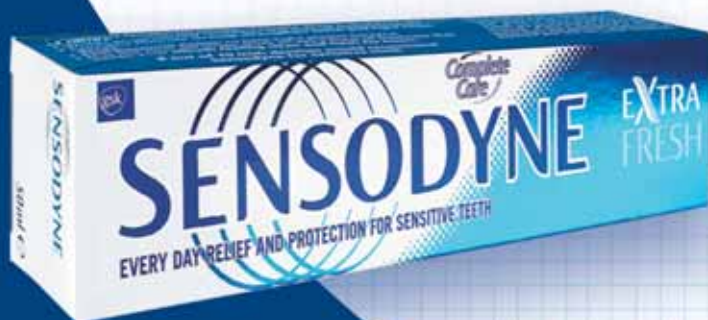
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1. Independent Market Research May 2003.
2. Gillam DG et al. J. Periodontol 1992; 63; 7-12.
3. Silverman et al. Am J Dent. 1994;7:9-12.
4. Salvato et al. Am J Dent. 1992; 5:303-308.
5. Orchardson, R. Strategies for the management of dentine hypersensitivity; 27:315-323; Toothwear and sensitivity, Martin Dunitz 2000.
6. Markowitz, R, Kim, S.; Hypersensitive Teeth: Experimental studies of Dentine Desensitizing Agents. Dent. Clin. N. Amer. 34:491-501, 1990.



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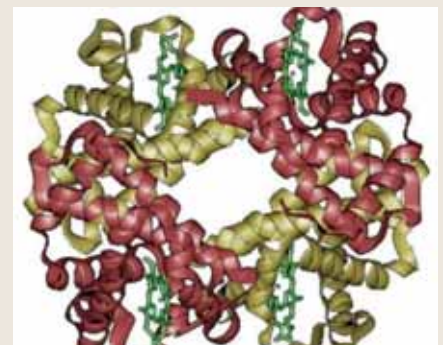
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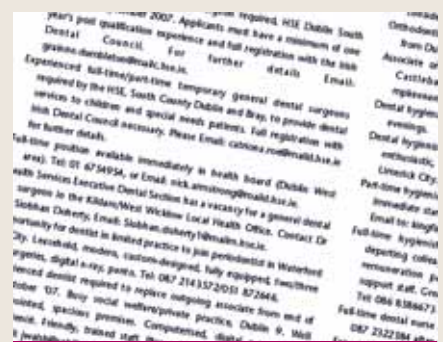
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1. Davies RM, Ellwood RP, Davies GM. *Journal of Clinical Periodontology* 2004; 31: 1029-1033. 2. Data on file, Colgate-Palmolive.

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Dental tourism – a challenge to us all

Medical tourism and very specifically, dental tourism, is a fact of modern life. In a variety of media and in conversation around Ireland, it seems that dental tourism is almost universally perceived as a good thing. Readers of Professor O'Connell and Dr Michael O'Sullivan's excellent article (pp180-182) will find that the reality can be rather different, with pain and trauma the real consequences of botched work in a variety of foreign destinations. Their conclusion is telling: "Based on accepted standards of care and anecdotal evidence to date, it seems that there is a substantial risk to patients travelling abroad for treatment."

Interestingly, also in this edition, Dr Tom Feeney reports that the European Health Forum, staged in Gastein in October, contrasted the dangers of dental tourism with the benefits associated with properly referred patient mobility. (See EU News, p 177).

Dental industry

The relationship between the dental industry and dental professionals is symbiotic. Yes, they need us for business, but we very much need them to assist us to improve our treatment of patients. We need their products, their innovation and their commercial applications of research. We are lucky to be served by a dental industry in Ireland that is well-organised and has high standards. That professionalism – and a real dedication to the industry – is evident in the words of the President of the Association of the Irish Dental Industry (AIDI) Seamus O'Neill in his interview in this edition.

Infection control on DVD

A good example of co-operation between the industry and the profession is the new, short educational DVD entitled 'Decontamination Procedures in the Dental Surgery'. It has been produced as a joint initiative between the Dublin Dental School and Hospital, and Promed, the dental and medical supply company. It highlights best practice in infection control and decontamination procedures and is available free of charge. (IDA members are receiving it with this edition of the Journal).

It was created specifically for dental professionals in practice and focuses on the following areas:

- ▶ personal protective equipment and handwashing;
- ▶ decontamination of patient treatment area;
- ▶ waste management;
- ▶ cleaning and decontamination of dental instruments;
- ▶ manual cleaning;
- ▶ ultrasonic cleaning; and,
- ▶ the washer/disinfector.

I strongly commend it to all dentists.

Scientific papers

In our scientific papers in this issue, we learn that narrow alveolar ridges remain a serious challenge for the successful placement of endosseous implants. However, a new technique offers less surgical trauma and reduced treatment time.

'Dental management of the anaemic patient' highlights the different causes of anaemia, and advises on various clinical scenarios. It also recommends a form of dental management for the general dental practitioner.

Our final paper identifies a deficit of knowledge in teachers of the management of tooth avulsion. It concludes that teachers would benefit from instruction in dental first aid. Given the frequency with which front teeth are lost in school-going children, this is a welcome and timely study.

Contributions to the Journal

I welcome Paddy Fleming's letter on a possible Irish column in the Journal. It would be helpful to receive your views on that topic, and it is always helpful to hear, as I do regularly, your views on any aspect of the Journal.

Can I encourage all readers to continue to communicate regularly with the members of the Editorial Board.

More for next year

The Editorial Board would like to thank the JIDA referees for all their time and effort in 2007. Without their hard work, attention to detail, and sometimes irreverent comment, the Journal would not flourish. We would also like to thank the Council of the IDA for their support, particularly as we move to six issues per year in 2008. They made a brave and, we believe, good decision.

We are grateful for all the support of Fionnuala O'Brien, who tirelessly gives of her organisational skills and time. The move by Ciara Murphy, the IDA CEO, is great for her and we wish her the best in 2008 and afterwards. However we will miss her pragmatic advice at our meetings. Last but not least we must thank Think Media, who have taken us to another level, helping, supporting and showing excellent team play.

It is hoped that 2008 will be an even better year for all of us. Happy Christmas and a wonderful New Year.



Leo F. A. Stassen

Prof. Leo F. A. Stassen
Honorary Editor

PRESIDENTIAL NEWS

Dentists involved in policymaking

IDA President JOHN BARRY updates members on the Association's involvement in the consultative process for a National Oral Strategy for Ireland, and on other IDA activities, both nationally and internationally.

National Oral Health Policy/Chief Dental Officer

The IDA is participating in the consultative panel on the recently launched National Oral Health Strategy, which it is hoped will be published mid-2008. The aim of the Strategy is to facilitate the planning and re-orientation of oral health services in Ireland over the next 5 to 10 years in partnership with the HSE and in collaboration with stakeholders. During the launch, Minister Mary Harney made a welcome announcement of her Department's commitment to appointing a Chief Dental Officer. It is hoped that the job specification for the position will be drafted before the end of the year, with the intention of filling the position as soon as possible.

Competition Authority report

The IDA broadly welcomes the thrust of the Competition Authority's report on the dental profession. The report is clearly aimed at the regulatory framework governing the profession, which is the responsibility of the Dental Council rather than individual dentists. We are concerned, however, that policymakers should not apply a purely economic approach to healthcare issues; while we will endorse any responsible proposals to encourage competitiveness within the profession, we must ensure that any changes do not prioritise competitiveness over professionalism.

American Dental Association Annual Conference

I was honoured to be invited by the President of the American Dental Association to attend their Annual Conference in San Francisco in late September. It was a fantastic experience to attend a conference on such a magnificent scale, with over 16,000 delegates and an excellent lecture programme including osteonecrosis, dental implants, and live 3D endodontics by Dr Stephen Buchanan. The hands-on courses were also superb and the gala dinner was thoroughly enjoyable, with operatic entertainment. I am certain that the IDA will emulate this fantastic conference with our Annual Conference, 'Operation Wexford', in April 2008, plans for which are well underway.

PDS Seminar 2007

I had the pleasure of attending this year's Public Dental Surgeons' Seminar in Westport in October. A very interesting range of topics was covered by well regarded speakers, the dental trade exhibited the latest in dental technology, and the social programme was enjoyed by

all. We were honoured to have Dr Peter Cooney, Chief Dental Officer of Canada, as our guest of honour, who spoke most eloquently both as part of the scientific conference and at the gala dinner, and who reiterated the IDA's call for the immediate appointment of a Chief Dental Officer.

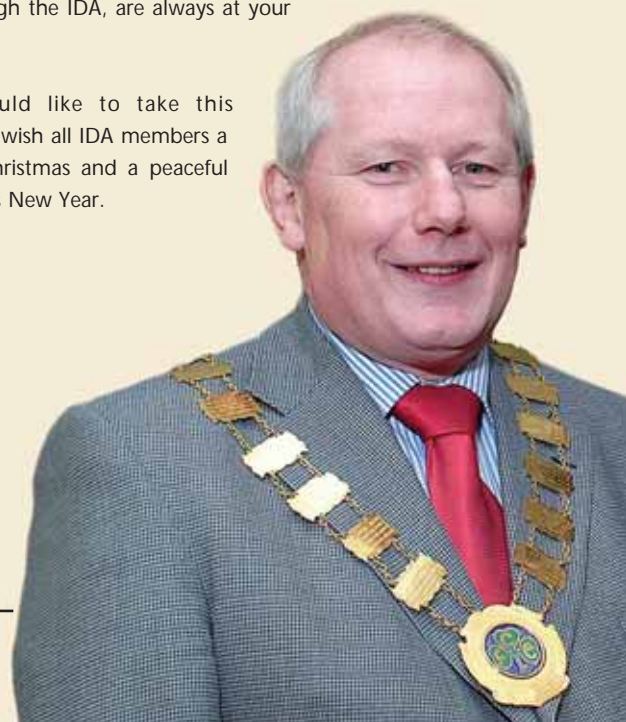
Colgate Oral Health Month

Colgate Oral Health Month during September proved yet again to be a great success, with the partnership of Colgate and the Irish Dental Association promoting good oral hygiene among the general public with the message 'Healthy Teeth require Healthy Gums'. Events included free oral healthcare advice and product sampling at venues around the country including supermarkets and dental surgeries. I would like to congratulate all those who took part in this very worthwhile venture.

IDA Diary and Directory 2008

IDA members may already have received the *2008 IDA Diary and Directory* or, if not, will do so in the coming days. This publication is an extremely useful organisational tool for both personal and professional life, and ensures that contact details for dental colleagues and trade suppliers, and an overview of all the services available through the IDA, are always at your fingertips!

Finally, I would like to take this opportunity to wish all IDA members a very Happy Christmas and a peaceful and prosperous New Year.



A chara,

Bhuail smaoinemh mé an mhí seo caite go mba dheas an rud é alt gairid i nGaeilge agus é aistrithe go Béarla a chló san *Iris Cumainn Déadach na hÉireann* ar bhonn míosúil. Tá a leithéid cheana féin in iris leighis Éireannach.

Clóítear an t-alt gairid (le hábhair ar nós fiacloireacht, ceol, sport, saoire, aimsir) i nGaeilge agus taobh leis seo, foilsítear an t-aistriúchán as Béarla.

Tá aithne agam ar fhiacloir, Aifric Ní Chaollaí (aifric1@ireland.com), a bhfuil Gaeilge ó dhúchas aici agus bheadh sí lán sásta ábhar ailt a ullmhú má ghlactar leis an moladh seo.

Céard a cheapann sibh faoin smaoinemh seo agus céard is féidir liom a dhéanamh leis an moladh seo a chur chun cinn?

Is mise le meas,

Pádraig Pléimeann, BDentSc, FDS, MSc, FFD,
Department of Public and Child Dental Health,
Dublin Dental School and Hospital,
Trinity College, Lincoln Place, Dublin 2.

Dear Editor

I had this idea last month that the *Journal of the Irish Dental Association* should have a short little article of a few paragraphs in Irish and translated as a short article in English in each issue. One of the Irish medical magazines already publishes something like this.

The few paragraphs (about dentistry, music, sport, holidays, weather) are printed in Irish and adjacent they are also published in English.

I have identified a dentist, Aifric Ni Chaollai (aifric1@ireland.com), who is a native Irish speaker and would be very happy to prepare something for you if you are happy with this recommendation. What do you think of this idea and can I help with progressing it?

Yours sincerely,

Paddy Fleming, BDentSc, FDS, MSc, FFD,
Department of Public and Child Dental Health,
Dublin Dental School and Hospital,
Trinity College, Lincoln Place, Dublin 2.

Annual Conference 2008 Operation Wexford

Our Annual Conference goes to Wexford in 2008. Located in the newly redesigned Whites Hotel, the Conference will take place from April 23 to 26 next. 2008 will be a unique year in many ways for our Association, in that we will host our AGM as part of our conference for the first year ever, on Thursday morning, April 24. Also, 2008 will see the election of the first Lady President of the Association, Dr Ena Brennan.

Over the four days, a selection of national and international speakers will highlight many different aspects of dentistry, including oral cancer, sports dentistry, implants, managing risk, cross infection control, digital photography in the dental practice, and much more. We are particularly delighted to have Dr William Bowen in attendance at the conference, a native of Enniscorthy who is best known for his contributions to our understanding of the causes and prevention of dental caries, or cavities. Israeli-based endodontist Dr Daniel Friedlander will also present on sports dentistry.

As always, an extensive social programme will complement the scientific content, ensuring an informative and entertaining conference for all.

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IDA NEWS

PDS meet in west



LEFT: Dr Peter Cooney, Chief Dental Officer for Canada, addresses the PDS dinner.



RIGHT: Outgoing President of the Public Dental Surgeons Group of the IDA, Dr Patrick Quinn, hands over the chain of office to Dr Bridget Harrington-Barry with Croagh Patrick in the background.



GSK at PDS

Sensodyne had a strong presence at the Seminar. Pictured on the GSK stand were Sinéad Bailey, Medical Marketing Manager, and Patrick Reidy, Dental Territory Manager – South.

The Annual Public Dental Surgeons Seminar took place this year in Westport, Co. Mayo, and was a great success. The event, which was attended by over 180 delegates including, dentists, hygienists and dental nurses, was spread over three days in the idyllic location of Knockranny House Hotel.

Presentations on such topics as dental erosion, facial pain management, orthodontics, cross infection control, paediatric patient management, oral care for the elderly, and traumatic dental injuries were included in the programme.

A dedicated trade show took place on Thursday, where 20 companies displayed their products and services to delegates.

Guest of honour at the annual dinner was Dr Peter Cooney, Chief Dental Officer for Canada, who gave a very insightful presentation on oral health in Canada and emphasised the importance of a Chief Dental Officer for Ireland.

IDA responds to Competition Authority report

The IDA has responded to the publication of a report on the profession by the Competition Authority.

The report's recommendations are clearly aimed at the regulatory framework governing the profession, which is the responsibility of the Dental Council rather than individual dentists.

The IDA said that it broadly welcomed the report's recommendations. However, it warned that policymakers could not apply a purely economic approach to healthcare issues.

The IDA welcomed the finding that the Department of Health and the Dental Council should better inform consumers of their

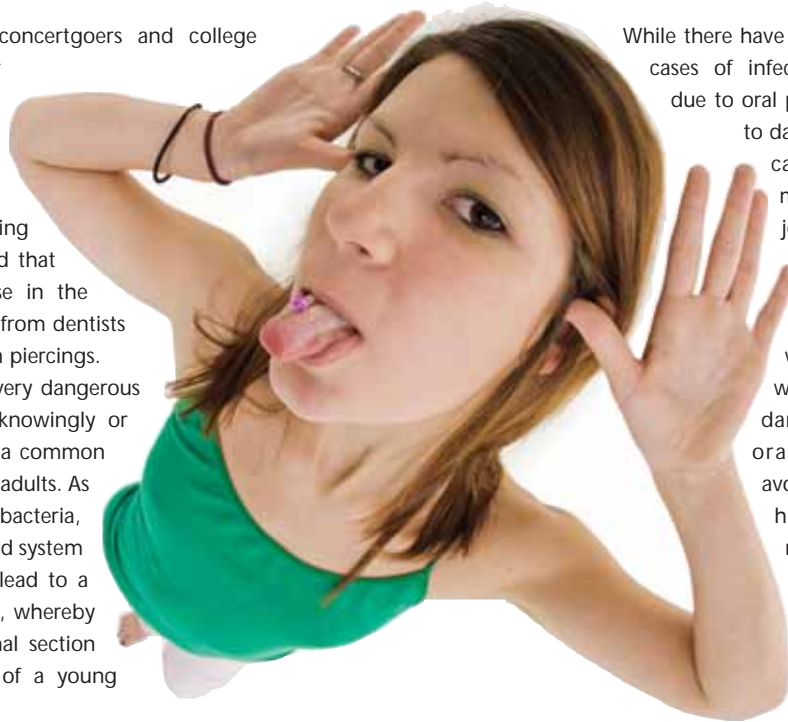
entitlements to dental care. 80% of the population is entitled to free or subsidised dental care from their local dentist, but because of lack of promotion of this by Government, only a fraction of those entitled actually take advantage of this facility.

Ciara Murphy, Chief Executive Officer, IDA, said: "Oral healthcare in Ireland is an entitlement and not a luxury. The best way to ensure consumers are protected is to make them aware of their entitlement to free routine dental care. When it comes to oral health, prevention is better than cure and annual oral examinations, which most people are entitled to free of charge, can help avoid the need for higher end dental treatments."

The IDA also welcomed the recommendation that more dentists and orthodontists need to be trained each year.

'Rebellious' oral piercings can lead to serious illness

Rebellious young Irish holidaymakers, concertgoers and college freshers who get their tongue, lip or mouth pierced are unwittingly putting their lives at risk. IDA members have identified 'oral jewellery' as a significant risk to young people's oral health that can, in extreme cases, result in life-threatening illness and infections. The IDA highlighted that members have reported a large increase in the number of young patients seeking advice from dentists in relation to the damaging effects of such piercings. Dentists warn that oral piercings can be very dangerous to young adults, especially those who knowingly or unknowingly suffer from heart murmurs, a common condition among Irish children and young adults. As the mouth harbours a large number of bacteria, high levels of bacteria might enter the blood system as a result of an oral piercing. This can lead to a condition known as infective endocarditis, whereby bacteria become attached to an abnormal section (due to a murmur or damaged valve) of a young person's heart, leading to serious illness.



While there have been no reported cases of infective endocarditis due to oral piercing in Ireland to date, the number of cases reported in medical and dental journals worldwide has been increasing. The IDA also warned that even when the more dangerous risks of oral piercing are avoided the wearer has an increased risk of causing painful and irreversible damage to their long-term oral health.

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IDA NEWS

CEO moving on



Irish Dental Association Chief Executive Officer, Ciara Murphy, recently tendered her resignation. Ciara was offered a senior position in another organisation and she has decided to accept that offer. Association President, Dr John Barry, said: "I wish to express on behalf of both our Council and all members, our sincere appreciation to Ciara for her contribution to the Irish Dental

Association over her seven years of employment. We wish her every good fortune and success in her future career."

During her time with the IDA, Ciara Murphy successfully implemented many changes to the IDA structure on foot of the PWC Review. She also raised the public relations profile of the IDA during her tenure as CEO, and had a major input into the original benchmarking agreement which was of huge benefit to public health dentists.

Dr Barry added: "She leaves the Association in a strong and healthy state but we will miss her energy, humour and enthusiasm." Ciara will cease her employment with the IDA in early February 2008. The IDA Board of Directors is now in the process of making arrangements to advertise for a new CEO at the earliest opportunity.

Captain's Prize winner



The winner of this year's Irish Dental Association Golf Society Captain's Prize was Dr Vinnie McDonagh of Cabinteely, Dublin. He is pictured (right) with Jonathan Savage of Optident, sponsors of the event.

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IDA at IDENTEX



At IDENTEX, AIDI President Seamus O'Neill met with Elaine Hughes of the Irish Dental Association.

IDHA meeting

The Irish Dental Hygienists Association recently staged its Winter Scientific Meeting in Dublin. Presentations were heard from Dr Dermot Canavan on facial pain, Chartered Accountant William Crean on tax returns, and from Consultant Alison Dougall on bleeding disorders.

QUIZ

This patient (pictured below) presented with recession on the labial side of the lower left and right central incisors following orthodontic treatment.



- How would you classify the recession on the lower left central incisor according to Miller's classification?
- What is the prognosis for this recession after surgical treatment?
- Which method of root coverage is indicated in this case?

Answers on page 177



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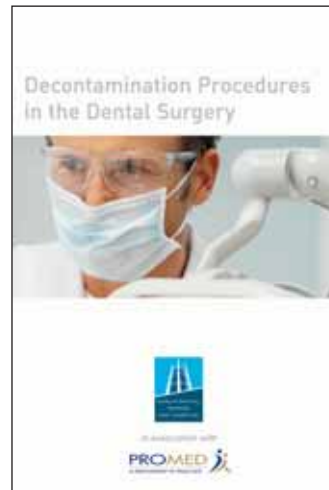
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Patients want to know more about plaque

Research carried out on behalf of Wrigley Oral Healthcare Programmes (WOHP) has highlighted confusion over plaque in Ireland. Despite the fact that 98% of dental professionals believe they talk to their patients about plaque, three-quarters of the adults in the same survey have no recollection of ever talking to their dental professional about it. However, an encouraging 66% of the adults want to know more.

The research showed clear differences between the thoughts of hygienists and dentists. Hygienists were more sceptical about their patients' understanding, and rightly so; they believed their patients knew very little, whereas the majority of dentists thought their patients were better informed than they actually were.

Two professional publications are now available to all members of WOHP. Both the *Plaque Bulletin* and the *Plaque Education Handbook* are available through the Wrigley Oral Healthcare Programme's website: www.BetterOralHealth.info.



The new DVD produced by the Dublin Dental School and Hospital, and Promed.

Dental Hospital and Promed launch DVD

'Decontamination Procedures in the Dental Surgery' is the title of a new DVD produced in a joint initiative between the Dublin Dental School and Hospital and dental supplies company, Promed. It is designed to increase the awareness of the importance of adhering to best practice in relation to infection control and decontamination procedures.

It is available free of charge and has been enclosed with this edition of the Journal for members of the IDA.

Irish people unaware of gum health

According to a recent Irish survey for Colgate Oral Health Month, which took place in September in partnership with the Irish Dental Association, almost 92% of those surveyed mistakenly believe that brushing alone will keep their teeth and gums healthy. Although almost 62% of respondents realise that following a good oral healthcare regime for just seven days will dramatically improve gum health, 43% still do not floss regularly and almost 40% do not use mouthwash. Three-quarters of those surveyed admitted that their gums bleed during brushing, which is one of the first signs of gingivitis. In spite of this, over 75% of respondents rate their oral health care regime as 'good' or 'very good'.

One-third of those surveyed felt that having fresh breath is the most important oral healthcare issue for them. Interestingly, priorities change with the years: in the 0-18 category, 43% of those surveyed said that not having any fillings was top of their list, versus 28% who believed that having white teeth was more important. In contrast, 44% of those aged 19-21 rated having white teeth as the number one priority, with only 12.5% being concerned about not having any fillings. The priority among the 26-35 year age category shifted towards bleeding gums and the 41-45 year age category was most concerned about having fresh breath (46%). The 51-55 year age category said that not having bleeding gums was their main concern (58%).

IDENTEX at Leopardstown

The Pavilion at Leopardstown Racecourse was the venue for IDENTEX 2007. A strong exhibitor list for the show, organised by the members of the Association of the Irish Dental Industry (AIDI), ensured there was plenty to see and on offer for dentists, dental nurses, and dental

hygienists. According to the Association approximately 370 dental professionals attended the event, with about 250 of those being dentists. While the Saturday proved stronger than the Friday for trade, overall the AIDI was broadly satisfied.

A full review of the show will take place and a decision will be made on the staging of IDENTEX for 2009.



BUSINESS NEWS

Implantology prospectus

More than 12,000 hours of postgraduate implantology education opportunities are available to dental professionals in the 2008 DENTSPLY Friadent Skills Development Programme. Published in November 2007, next year's Prospectus includes training to help every member of the implant team to improve their skills and fulfil their potential, whatever their level of previous involvement with implant treatment.

According to Chris Meldrum, Managing Director UK & Ireland for DENTSPLY Friadent, "The extended range of introductory courses makes it much easier to begin to get a flavour of what this rapidly expanding field of dentistry has to offer. Thereafter, our most comprehensive Skills Development Programme to date can provide continued educational opportunities and ongoing support every step of the way for all of the key members of the implant treatment team".



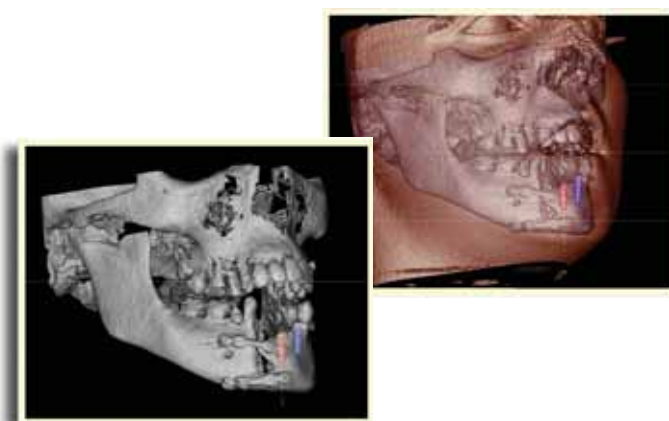
An implantology course.



First steps towards dental implantology

General dental practitioners who would like to take their first steps into implant dentistry can attend a new course presented by Dr Sharad Patel (left). 'A Step into Dental Implants' is

designed to provide clinicians with a thorough understanding of basic implant placement techniques. The course is part of the DENTSPLY Friadent Implantology Skills Development Programme for 2008 and will be held at Chertsey in the UK.



I-Cat scanner available

Three years ago, Dr Paul Moore of Gate Clinic Dental Practice, Galway, was upgrading the implant services offered by the practice. Looking for new equipment, he discovered the I-Cat scanner, which is a new generation volumetric scanner, used specifically for 3D imaging of head and neck. Realising the potential benefits to patients, surgeons and the restorative dentist, he became the first dentist in Europe to take delivery of this system.

Having evaluated this technology and explored its potential for two years, Dr Moore is now offering this service to colleagues, and further details or examples of the range of capabilities can be viewed on a demonstration powerpoint available from the practice. A demo of the I-Cat programme can be sent on request.

Nobel Biocare extends range



Using the new curvy abutment - clinical picture showing soft tissue growth in concave waist.

Courtesy of Prof. Eric Rompen, Belgium

Nobel Biocare has extended its range of solutions for dental laboratories and clinicians. The solutions include: a new implant system – NobelActive™; an upgrade to the industry leading Procera® Software; a new abutment designed for better aesthetics – Curvy™ Abutment; and, a complete package for 3D planning of maxillofacial defect rehabilitations – Implant-retained Maxillofacial Concept™.

In total, Nobel Biocare is releasing 300 new products and solutions. "With this launch, Nobel Biocare reconfirms its dedication to providing the marketplace with only the best in innovative and evidence-based aesthetic and restorative dentistry solutions," says the company's Domenico Scala.

Computers in dental practice: the PC exposed

Fewer than 20% of dental practices in Ireland are computerised, although this percentage is likely to increase in the coming years. TOM FEENEY describes the basic components of a PC, and demystifies the jargon for the prospective buyer.

Inside the PC

Look inside any PC and you will see similar items of hardware – processors, motherboards, memory chips, disk drives and power supplies. Many of these items are built to a fixed set of standards: this means that computers can be upgraded quite easily with additional items of hardware that just plug into the main system. It is worth getting to know your way around the inside of a PC. There may be a time when you want to add more memory or an expansion card for a special purpose. Remember though – never open a PC when it is turned on! PCs look different depending on their design, but it is quite easy to identify the most common components.

The central processing unit

The CPU or central processing unit is the main chip inside a computer – the computer's 'brain'. PCs today usually have either an AMD or an Intel® Pentium® processor. To a large extent the CPU and the amount of available RAM (random access memory) determine how fast a PC will run and how much it will cost. The speed of the processor is measured in megahertz (MHz) and now gigahertz (GHz) – millions or billions of cycles per second. The CPU repeatedly carries out millions of simple calculations per second, which combine to run the programs we use on our PCs. The newer Pentium 4s, the Pentium D and the Athlon 64 are 64-bit models, which support much more memory and move it more quickly.

Comparisons between the Intel® chip and the AMD are not easy – a 2GHz Athlon processor from AMD will not run at the same speed as a 2GHz processor from Intel. However, unless you're running applications with high graphical demands there is little sense in getting too hung up on the very highest speeds.

The motherboard

The motherboard is the large board inside a typical desktop computer on which the microprocessor, main memory, various chips and other essential components are located. Other components such as external storage, controllers for video display and sound, and peripheral devices are typically attached to the motherboard via edge connectors and cables, although in modern computers it is increasingly common to integrate these 'peripherals' into the motherboard.

RAM – random access memory

Memory is the working area the computer has for performing calculations and other tasks. How much memory, or RAM, a PC has, and its hard disk capacity, greatly affect its usefulness for a particular task.

RAM chips are placed onto SIMMS (single in-line memory modules) or DIMMS (dual in-line memory modules), which are placed into slots inside the PC. This allows the memory to be expanded by adding extra DIMMS or replacing existing ones with larger capacity versions. Although programs usually run if there isn't enough RAM, they will run much more slowly.

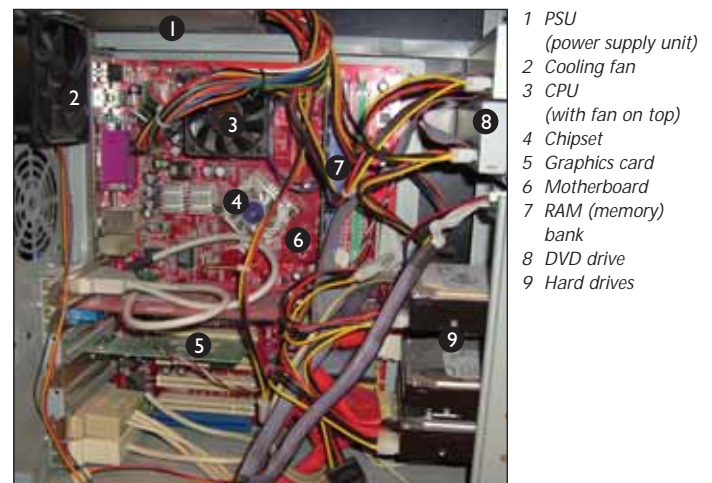


FIGURE 1: Inside view of a typical desktop PC.

Today, computers come with at least 256 to 512MB of RAM, but it is possible to make a big difference in the speed of a computer system by increasing this amount.

Long-term storage

RAM is volatile, which means that when the computer is switched off the contents of RAM are lost. We therefore need some way of holding onto the information permanently. Hard disks, DVD-ROMs and floppy disks are the main devices we use for this purpose.

Hard disk drives

Nearly all PCs have a hard disk drive, which permanently stores programs, data and files. All of the programs that have already been loaded onto the PC are stored on the hard disk. When you buy any new program, the first thing that you have to do is install it. This process copies any necessary files onto the hard disk.

Modern hard disks have a very high capacity (in the region of 160GB in many home computers). The reason for the ever-increasing size of hard disks is that programs which include lots of multimedia files (sound, graphics, animation and video clips) take up a lot of room, as do application programs like Microsoft Office and Corel DRAW. Within a short time it won't be unusual to have a PC with a 1,000GB hard disk.

Hard disks are normally internal; however, external hard disks, which you can plug into the computer when needed, are also available.

Measuring storage capacity – the bit

Computer storage is usually measured in megabytes and gigabytes. These measurements are based on the computer's fundamental unit of measurement – the bit. Computers store everything in streams of

PRACTICE MANAGEMENT

binary numbers (strings of ones and zeros). Each group of ones and zeros is called a bit, a group of eight bits make up one byte, and one byte is equivalent to storing one character (e.g. 'A'). One thousand bytes (kilobytes or KB) or millions of bytes (megabytes or MB) are commonplace terminology.

Often computers are specified as 32-bit, 64-bit, and so on, and this means that the hardware can process 32 or 64 bits at a time. Obviously, the more bits that can be processed at a time the faster the computer will be.

What does this mean in real terms?

A Word document containing about 1,000 words will take up about 15KB. A half-screen full-colour picture will take up about 150KB. So, the average floppy disk could hold around 100 short letters or 10 images.

Optical drives

CD and DVD drives are examples of optical drives. You can store up to 4.7GB of video or data on each DVD+R, DVD-R, DVD+RW, or DVD-RW disk, or save up to 8.5GB of data on each double layer DVD+R disk.

The amount of time taken to write a disk depends upon the writing speed of the recorder, the writing mode used by the recorder, the amount of information to be written, and whether verification or defect management is employed. A CD has far too little storage capacity for back-up use in a dental practice. A DVD may be sufficient but it is more likely that some larger type of storage device will be needed.

Graphics

The images you see on your monitor are made of tiny dots called pixels. At most common resolution settings a screen displays over one million pixels, and the computer has to decide what to do with every one in order to create an image. Unless a computer has graphics capability built into the motherboard, that translation takes place on the graphics card. PCI Express is the newest of the three types of graphic interface and provides the fastest transfer rates between the graphics card and the motherboard.

The digital visual interface (DVI) is a video interface standard designed to maximise the visual quality of digital display devices such as flat panel LCD computer displays and digital projectors. It is not necessary to install a third party graphics card to display decent 3D graphics these days as motherboard chipsets offer integrated graphics that are more than adequate for most practice needs.

Jargon

ATI Radeon: the computer's make.

PCIe: PCI Express.

128MB: the card memory.

DVI: digital visual interface.

Video graphics array (VGA): an analogue computer display standard.

Sound

Sound is not usually a high priority for the average practice. There is usually enough integrated sound capability in all modern PCs.

Monitors

Flat screens are the only show in town these days, and there is a choice between analogue or digital flat screens. Digital monitors offer digital technology for premium computing. In terms of screen size, 19 inches is becoming the norm, but beware of pixilation (picture deterioration) with some intraoral cameras.

Ports

In computer hardware, a port serves as an interface between the computer and other computers or devices. After ports are connected, they typically require 'handshaking', where transfer type, transfer rate, and other necessary information is shared even before data are sent.

Hot-pluggable ports can be connected while equipment is running. About the only port on personal computers that is not hot-pluggable is the keyboard PS/2 connector; hot-plugging a keyboard on many computer models can cause permanent damage to the motherboard.

Plug-and-play ports are designed so that the connected devices automatically start handshaking when connected. USB ports and FireWire ports are plug-and-play. Just about any computer that you buy today comes with one or more USB connectors on the back. These connectors let you attach everything, from a mouse to a printer, to your computer quickly and easily.

If you are buying a new computer these days, look for the maximum number of USB ports on the back and also some on the front. You can't have too many!

Jargon

1. Sound connections.
2. A network connection – you need at least one.
3. Multiple USB ports.
4. VGA port – monitor cable connection.
5. Parallel port – can be used for an old style printer cable – not used in modern printers.
6. Likewise, serial ports are not used much these days.



CED update: dental tourism; tooth whitening; amalgams

DR TOM FEENEY, Treasurer of the Council of European Dentists (CED), summaries recent events of relevance in Europe.

Gastein Forum highlights high risks in dental tourism

The European Health Forum Gastein 2007 took place on October 3-6, and celebrated its 10th anniversary under the heading 'Shaping the future of health'. The focus of this year's conference, which was attended by EU Health Commissioner, Markos Kyprianou, was on public health, with sessions on chronic diseases, investment in health, diabetes and European tobacco policy. In addition, there was one session on health services and the future EU framework for cross-border care, in which patient mobility and the future Health Services Directive were discussed. Within the discussion, the phenomenon of patients travelling abroad for dental care was highlighted as a type of patient mobility that involved quite high risks. This was because very little support exists for such patients: they normally decide to go abroad to save money, have little information on the treatment they will receive, and manage the process themselves. This can be contrasted with patient mobility where, for example, an institution refers a patient abroad, giving certain quality guarantees and treatment information, and taking care of the logistics.

Update on tooth whitening products

In summary, the Cosmetics Directive limits the maximum permissible concentration of hydrogen peroxide (H_2O_2) in tooth-whitening products (TWPs) to 0.1%. This limit has proved unworkable because it excludes virtually all TWPs. Certain cosmetics manufacturers put pressure on the European Commission over a number of years to raise the maximum H_2O_2 limit to 6% – a convenient cut-off point for their products. The Scientific Committee on Consumer Products (SCCP) delivered four opinions between 1999 and 2005, the last one of which clearly concluded that the available evidence did not support making

TWPs available with 6% H_2O_2 for over-the-counter sale. Contrary to this advice, the Commission sought to amend the Cosmetics Directive to introduce this new maximum limit of 6% for over-the-counter availability.

After being consulted by the Commission, the CED expressed its concerns in official letters in July and October 2006 that the Commission had not taken the SCCP's opinion properly into account. The CED also informed the Commission of new scientific literature further supporting the opinion of the SCCP that over-the-counter sale of 6% TWPs was not safe for consumers.

As a result of the CED's intervention, the Commission withdrew its plans to introduce the new 6% maximum in November 2006.

New request for scientific opinion on tooth whiteners

In June 2007, the Commission submitted a new request for a scientific opinion on the safety of hydrogen peroxide in oral hygiene products. Before submitting the request, the commission sought the advice of the CED, which was given.

The requested opinion is broad in subject matter, because it is to cover not only TWPs, but toothpastes and mouth rinses as well. The Commission asks the SCCP to consider all available data since its last opinion in March 2005, in order to assess the possible health risks of hydrogen peroxide in oral products. They are asked to identify specific health risks relating to the different concentrations of product and different usage conditions, e.g., exclusive use by a professional, first use by a professional or over-the-counter availability. The Commission therefore wants the SCCP to advise on what usage conditions are safe for each concentration of TWP.

There is no specific deadline for the opinion, but Commission officials expect it to be published before the end of 2007.



Answers to quiz (page 171)

- Millers class III, long/wide recession crossing the mucogingival border with partial loss of the inter-dental gingiva and bone.
- Only partial coverage is possible (see photograph).
- There are several different methods of root coverage but the one used in this case is a combination of a Grupe (lateral sliding flap) and sub-epithelial connective tissue graft.

EU NEWS

Future regulatory framework for tooth-whitening products

Over the last six months, the CED's working group (WG) on tooth whitening has looked into the broader question of how best to regulate TWPs across Europe. The CED's key concern is to find the safest and most appropriate way of ensuring that TWPs that are not safe for direct over-the-counter availability to consumers are available to them only after consultation with a dentist.

The CED believes that the medical devices regime provides a safer regulatory framework than cosmetics, because it obliges Member States to ensure that devices are placed on the market only if they comply with conditions of supply and distribution in accordance with their intended purpose. If a TWP must only be used by dentists, Member States have an obligation to ensure that it is only supplied to dentists. It is positive that the Commission launched a study in October 2007 on the problem of medical devices being available via distribution channels not authorised or intended by manufacturers. The study will look into potential risks for patients arising from this situation. We hope that this study leads to the medical devices regime being made even safer in the future.

Further CED activities

The CED WG is prepared to act quickly once the SCCP publishes its opinion, and has already agreed with the Commission to have a meeting soon after publication, in order to discuss implementation.

New Health Services Directive will give Commission more say over health systems and services

The idea for this Directive was born when health services were excluded from the general Services Directive (Dir 2006/123) last year, which was followed by a public consultation to which the CED made a submission.

The draft Directive "on safe, high quality and efficient cross-border healthcare", which the Commission plans to publish this month, is likely to give the European Commission greater influence over Member State health systems and health services. The CED's Internal Market Task Force is currently analysing the "pre-draft" Directive, which states that Member State authorities are primarily responsible for setting, and ensuring compliance with, quality standards; for ensuring that professionals fulfil information obligations to patients; and for ensuring that professionals have liability insurance. However, a new Commission-led committee will have powers to "facilitate" this, and thereby push towards a convergence in quality and other standards across Europe.

The purpose of the Directive is to provide a clear Community framework for cross-border healthcare, in particular for patient mobility. The Directive will call for national contact points to be set up to provide information to patients on cross-border healthcare – for example information on their rights, guarantees of quality and safety, and procedures for complaints.

Ethical Code

The CED's Ethical Code was first drawn up in 1965 and was last updated in 2002 so as to take into account the provisions of the EU Directive on E-commerce. The CED formally decided to further update the code at their General Meeting in May 2006 in Porto. This decision was motivated by the fact that the European Commission is

encouraging European professional associations to draw up Codes of Conduct against the background of cross-border movements of professionals throughout the EU and EEA-states.

The fourth draft of the code, incorporating the new amendments that have been accepted, will be put to the Boards and General Meeting on November 29 and 30 for adoption.

Amalgam update**Background and summary**

The Commission published a mercury strategy in January 2005. The objectives of the strategy were to reduce mercury emissions, cut supply and demand, find solutions for dealing with mercury surpluses, protect people against mercury exposure, and promote international action on mercury. The strategy included action to be taken on amalgam – investigating the implementation of waste laws and requesting scientific opinions on the health and environmental risks of amalgam.

In March 2006 the European Parliament called for the Commission to propose restrictions on the use of amalgam for health and environmental reasons by the end of 2007.

In February 2007, the Commission submitted requests for opinions from two scientific committees:

- on the safety of dental amalgam and alternative dental restoration materials for patients and users; and,
- on the environmental risks and indirect health effects of mercury in dental amalgam.

New developments since May 2007 CED General Meeting

The CED was represented at a conference of the European Environmental Bureau on May 25, entitled 'The Dental Sector as a Source of Mercury Contamination'. Prof. Gottfried Schmalz, member of the Amalgam WG and professor at Regensburg University, presented the arguments in favour of the continued use of amalgam.

The two EU scientific committees looking at health and environmental risks continue to work on their opinions. Commission officials responsible for the committees expect both to report around the end of 2007. No decision has yet been taken on whether their opinions will first be published as preliminary opinions, so as to enable a short public consultation before finalisation.

In June 2007 the European Parliament voted at first reading on the Commission's draft Regulation on the banning of exports and the safe storage of metallic mercury. The Common Position of the EU Council is currently being awaited, and the Parliament's second reading is likely to be in March 2008. However, the CED's Amalgam WG does not believe that this Regulation will impact on the continued use of amalgam.

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FEATURE

Have teeth will travel: dental tourism – informing the public

PROFESSOR BRIAN O'CONNELL, Professor of Restorative Dentistry, Dublin Dental School and Hospital, and DR MICHAEL O'SULLIVAN, Consultant in Restorative Dentistry at the Dublin Dental School and Hospital, review the results of an IDA survey on dental tourism.

Over the last few years the phenomenon of patients travelling abroad for dental treatment has become increasingly common. Newspapers and magazines now carry regular advertising for foreign dental services and also publish feature articles and accounts of patients who have availed of these services. The attraction of so-called 'dental tourism' appears to be the cost advantage, speed of treatment, and the combination of some treatment with a holiday package. Our concern is whether patients are presented with complete and balanced information on dental tourism so that they can make informed decisions. We think it important to raise some issues about dental tourism that are not often discussed in the media.

No comprehensive figures are available as to the number of Irish people travelling abroad for treatment, or the qualitative experience of these patients. As public dental consultants we frequently encounter patients seeking to rectify problems with treatment provided elsewhere, but this is hardly a representative sample. While our experience has allowed us to make some observations about patients returning from other countries, we are unable to generalise these observations without more complete data. It is notable that the Council of European Dentists has advised the European Commission that patient mobility should not be promoted, but instead professional mobility, quality promotion, patient information and continuity of care should be supported.

IDA survey

The Irish Dental Association has completed an audit of dental tourism among members and requested that we review the results. A total of 26 responses were received and included cases from Northern Ireland, Hungary, Spain, Croatia, Argentina, Thailand, Turkey and Azerbaijan. A large variation in quality was evident, with some patients receiving a high standard of care. In 10 instances the patients were pleased with their treatment outcome but, of these, five required remedial work (three required extensive re-treatment), four were satisfactory, and one had not been fully assessed. The other 16 cases required extensive re-treatment at a specialist level. From the small sample size, there was no geographic trend. This survey demonstrates that short-term patient satisfaction with treatment does not necessarily equate with good quality of care.

Quality of treatment

A principle concern about travelling abroad for dental treatment is the ability to provide the proper environment for treatment, while building a trusting relationship between patient and dentist. Before starting a course of treatment dentists will routinely check their patients' general health, obtain a complete list of medications and frequently consult with the patient's medical team. For example, patients presenting with evidence of erosive tooth loss will often be referred to their general practitioner for further investigation and treatment. It is not clear if this approach is followed within the dental tourism business model.

Condensing a large amount of complex treatment into a very short time frame is inherently risky. There must be sufficient time for planning and staging treatment, so that patients may make informed decisions. If completing extensive treatment in condensed blocks were best practice then it would be the standard of care worldwide. However, this is not the case and Dental Protection has offered the following advice: "There is always a need for caution when the timing of treatment is influenced by deadlines or time constraints imposed by the patient (or by any third parties). Treatment that needs to be completed by a particular date, or a particular event in the patient's life, needs to be considered very carefully. If these constraints might impose compromises of any kind, or might affect the prognosis in any way, it is important that these risks are explained very carefully to the patient, stressing any possible consequences of carrying out the treatment in that way".

The following examples illustrate some of the challenges in providing good quality dental care remote from the patient's home:

1. The most common reason for changing restorations is changing dentists! A dentist who has monitored the patient for some time will be better placed to determine when restorations need to be changed. For this reason, a continuum of care is advisable, as it is believed to be more conservative. Changing dentist may be the least conservative option for tooth preservation.
2. The majority of Irish adults have some degree of periodontal disease, according to the Oral Health of Irish Adults Survey (2000-2002). Dentists are taught to diagnose periodontal disease, initiate preventive measures, treat the disease and re-evaluate the patient's response after six weeks, which is considered the optimal time to evaluate healing. Any sites that do not respond are either re-instrumented or treated with surgical periodontics. A further period of at least six weeks is recommended before re-evaluation.



3. Teeth that are non-vital and have apical infections should be monitored after root treatment, prior to definitive treatment of the tooth. Current thinking suggests restoration of the coronal seal immediately, but delaying the definitive coronal restoration until evidence of healing is seen radiographically. This may take some months and up to two years.
4. Many teeth requiring complex restorations may also require other preparatory treatment, such as crown lengthening. The outcomes of these treatments need to be determined prior to definitive restoration of the tooth. Anterior teeth, in particular, should not be definitively restored until tissue levels are stable, which may take several months. Similarly, many implant sites require augmentation procedures, which need time to heal before reassessment and implant placement.
5. Complex treatments need to be planned and may involve interactions with other colleagues and second opinions. Very few dentists possess the full range of skills to treat complex cases in isolation. For example, orthodontic tooth movement is often necessary as an adjunct to restorative care or implant placement.
6. Rehabilitation planning requires the making of study casts and diagnostic wax-ups where the proposed tooth form and occlusion can be evaluated prior to treatment. If anterior tooth form is to be changed, it is good practice to make provisional restorations for the patient to evaluate the proposed restoration for a time prior to definitive treatment. This allows a period of 'trial' that may alter the definitive restorations for the better, for instance, to facilitate proper speech.
7. Sufficient time should be allowed for the completion of laboratory procedures and the try-in of intermediate steps, such as metal frameworks or tooth arrangements. Skipping these steps means that discrepancies are discovered only at the delivery stage, where the pressure on dentist and patient is to accept a compromised result.
8. Patients undergoing extensive restorative treatment routinely need to establish a new occlusal relationship, which may involve the use of a removable splint or provisional restorations. It is essential to ensure that any such position is stable and comfortable for the patient before definitive treatment begins.
9. Patients with symptoms of temporomandibular joint (TMJ) dysfunction need careful assessment of function and comfort before irreversible dental treatment begins. This is usually an iterative process over several weeks or months, with an unpredictable outcome.

Follow-up and emergency care

After a course of dental treatment, all patients are advised to seek follow-up care with their dentist and, generally, the more complex their history and treatment, the more important it is to maintain regular contact with their practitioner. Once restorative treatment is complete, for example, it is advisable to monitor periodontal attachment levels, caries development, changes in tooth mobility, fractures of teeth or restorations, tooth vitality, TMJ function, plaque accumulation, and aesthetic problems. Any changes may indicate the



FIGURE 1: The patient is a 57-year-old male who went to Azerbaijan for dental treatment. He had an 11-unit fixed partial denture placed in the mandibular arch with, we believe, no prior radiographs. The teeth involved were previously unrestored. Three poor quality root treatments were completed as part of the plan and the operator failed to take into account the multiple unerupted teeth. The restoration is poorly fitting and not cleansable. Treatment time was four to five days.



FIGURE 2: An example of a poorly designed fixed prosthesis, which does not facilitate cleaning or tissue health.

presence of underlying disease or defective restorations, and these are best addressed in a timely manner to prevent more serious sequelae. It seems obvious that follow-up care is not emphasised by remote care providers and there is a low awareness among patients regarding its importance. In fact, frequently, dental tourists believe that their treatment is a 'once off' event, or at least that restorations can be redone at some time in the distant future. In contrast, local providers of dental care are more likely to realise that it is in the interest of patients (and dentists) to undergo a proper maintenance phase of treatment, in order to ensure the longest survival of their teeth.

Complications arising from dental treatment are well documented in the literature – the frequency and complexity of complications are related to the amount and invasiveness of the treatment. For example, it is reported that 15% of teeth prepared for crowns are likely to become non-vital and the failure of dental implants is likewise a predictable event, even under the best of circumstances. Patients treated abroad who develop acute pain, infection, or the failure of a restoration when they return home, are at a distinct disadvantage, as they may not have a local care provider familiar with their treatment history. This is sometimes compounded by the inaccessibility of treatment records, which may be in a foreign

FEATURE

language, and the inability to contact the treating dentist at short notice. On the other hand, it is not practical to follow up minor problems with a dentist practising at a distance, such as screw loosening of implant restorations. In the long run, local dentists may be reluctant to take responsibility for resolving problems resulting from treatment abroad, as it is rarely a positive experience for the patient or dentist.

Commitment to patients

Reputable dentists everywhere stand over their treatment and will do their best to satisfy their patients. Most dental tourism companies guarantee satisfaction to patients, at least in general terms. Our experience suggests that as significant problems develop with dental treatment (wherever it is provided), patients become increasingly reluctant to return to the treating dentist. However, this phenomenon is more marked in patients treated abroad. It appears that patients of Irish dentists are more confident in asserting their right to a standard of care, either through the IDA, the Dental Council or even legal means. Patients are generally less certain of their rights, and how to access them, when they have received dental treatment in another country. Undoubtedly, some patients perceive that it is not worth the effort to achieve redress against dentists outside the jurisdiction.

Patients should routinely be informed that many dental procedures and their sequelae are essentially irreversible and so not easily rectified. For example, poorly fitting or designed bridgework, especially if not closely monitored, may not only fail but result in the loss of abutment teeth as well. Hence, the re-treatment of failed restorative cases generally requires more skill, complexity and cost. This is borne out by the IDA survey, where re-treatment costs for patients seeking to rectify treatment received abroad was several times

that of the original treatment. Unfortunately, patients who have to rely on the public dental system here in such cases find that the system has marked limitations in capacity and skills. The result is often very distressing for patients and a double blow financially.

Access to information and to dental care

Patients report that one reason they seek treatment abroad is because information on dental care in other countries is widely available and particularly prominent on the Internet. For many patients, the Internet is the main way they research and plan major purchases (holidays, cars, homes). Dental tourism is presented as convenient, easily accessible, high quality and affordable – the lack of comparable information about local dentists may lead patients to believe that similar services are not readily available in Ireland. Indeed, some patients report difficulty finding specialist care in parts of the country. In this regard, the Competition Authority's recent recommendation that dentists should be able to provide more information to patients must be welcomed. Needless to say, any change in the regime should allow for the provision of good quality information that is useful to patients in making decisions.

Conclusion

In the final analysis, the quality of dental care can only be judged by the long-term maintenance of oral health and the survival of patients' teeth. Active involvement of the patient and dentist are required for success. There are insufficient data available to know if this is possible using the dental tourism model. Based on accepted standards of care and anecdotal evidence to date, it seems that there is substantial risk to patients travelling abroad for treatment. Patients need access to more information on dental tourism in order to make informed decisions.



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*Sharma N, Charles CH Lynch MC, et al. Adjunctive benefit of an essential oil-containing mouthrinse in reducing plaque and gingivitis in patients who brush and floss regularly: a six month study. J AM Dent Assoc. 2004;135:496-504.

INTERVIEW

Industry leader

The relationship between dentists and the companies that supply the profession is multi-faceted and, generally, beneficial to both sides. However, there will always be some tension in the relationship between buyers and sellers. PAUL O'GRADY got the suppliers' view in an interview with the President of the AIDI, Seamus O'Neill.



The President at work – Seamus O'Neill at the opening of IDENTEX in Leopardstown, County Dublin, recently.

Seamus O'Neill is a man well known to the dental profession in Ireland. Twenty-eight years ago he took over a small agency business and turned it into a leading supplier of consumable products to dentists in Ireland. Earlier this year, he sold that business, the Irish Dental Equipment Company, to McCormackHorner and the merged entity is to be known as Dental Medical Ireland Ltd (DMI). Seamus is the Director of Consumable Sales for the new company and is currently engaged in the process of integrating the two businesses. His credentials were well known to his colleagues in the dental industry when they elected Seamus as President of the Association of the Irish Dental Industry (AIDI) in 2005. He is held in high esteem throughout dentistry and met the *Journal of the Irish Dental Association* to give the industry's view on all things dental in Ireland.

Healthy

Seamus considers the dental industry to be in a healthy state at the moment and believes that it provides an excellent service to dentists. "There are about 1,000 practices in the Republic and with 11 dental dealers and several other companies, there are more dental companies here per dental practice than in the UK. This allows for a higher level of service with reps calling more frequently on dentists," he points out.

Assessing the factors that affect the trade, he is conscious of the impact that EU regulations have made: "Take sterilisers. The EU has specified that Class B Vacuum Autoclaves must be used. That is positive for the profession and good for the trade." Of course, he also accepts that a strong economy has put more money in consumers' pockets ensuring that dentists are busier, with consequent increased demand for equipment, products and services.

VALUE OF SALES IN 2006

Dental equipment requiring installation	€7,000,000
Other dental equipment	€2,100,000
Consumable sales to dentists	€8,000,000
Consumable sales to laboratories	€1,000,000
Teeth sales to dentists and laboratories	€250,000
Implants	€2,555,000
After sales technical services	€1,000,000
Total value of Irish dental industry	€21,905,000

Source: AIDI

Change ever present

Having been almost 30 years in the business, Seamus is in a good position to reflect on how the dental business has changed. "In the 1970s, there were very few disposables in use in surgeries; needles were re-used; and, gloves and masks were not commonly used. Dental suppliers didn't need to stock materials and there was no need for warehousing. These things have all changed."

In endodontics, Seamus also sees huge developments: "This type of dentistry was only for specialists, but there have been great improvements in techniques and in availability of good products. As a result, almost all GDPs now do some endodontic work."

In restorative work too, Seamus sees progress resulting from the availability of superior materials from the industry. "The front filling material allowed for improvements in aesthetics and, combined with the improvement in implants, have transformed this area of dentistry."

Relationship between the profession and the industry

That brings Seamus very neatly to a theme close to his heart – the symbiotic relationship between the profession and industry. "It is because of these types of developments that we should be communicating with dentists about our research and development and our new products." He continues: "I have heard some dentists say that they don't allow reps into their practices. I consider that strange. The information our representatives have can make life easier for dentists. It is very important for dentists to make time available so that they can be updated on new products and materials. It's very similar to continuous professional development."

However, nothing is ever all sweetness and light and there is concern among dentists that mergers in the industry are leading to a lack of competitive suppliers, with a potential inflationary impact on prices of dental supplies. Predictably, Seamus disagrees, but puts a strong counter-argument: "Where you have many smaller dealers, it is more difficult to negotiate deals on price from the major suppliers – you can have too many players in the market. In fact, reasonable scale is necessary for competitiveness. I can see it in my own business – we are now capable of gaining more discount as a result of our increased purchasing power. This should lead to better deals for dentists."

INDUSTRY PROFILE

Population of Republic of Ireland	4.25m
Number of practicing dentists	1,660
Number of dental practices	952
Number of dental laboratories	148
Number of dental technicians	176
Number of dental dealers	11

PROPORTION OF SALES

To dentists	85%
To laboratories	15%

Source: AIDI

Another concern that dentists have expressed is about a deterioration in standards of service. Seamus recognises this concern but points out that his own company (IDEC) had ISO accreditation for its operations and that he will ensure the new company (DMI) will also achieve accreditation. At an industry level, he is using his influence as President of the AIDI to push up standards of service, but accepts that the Irish companies have something of an advantage versus the multi-nationals who have to wait for supplies from bases in the UK, Germany, Switzerland and elsewhere.

Role of AIDI

Asked about the role of the AIDI, Seamus explains that in the past it was instrumental in the education of representatives. A year-long, part-time course was organised through the Dental Hospital and led by Dr Barry Harrington.

The Association also monitors companies to ensure that they trade properly; works closely with the Irish Dental Association on tradeshows and the provision of information for the profession; and, liaises with the Irish Medicines Board on behalf of its members that sell anaesthetics, and must observe licences and related regulations.

His goals for his Presidency include:

- improving education and training for the staff of member companies;
- making IDENTEX a showpiece for the dental industry; and,
- increasing awareness of the improvements in IT and particularly digital technology that are a tremendous benefit for the dental profession.

On this last point, he comments: "Technology enables Irish dentistry to stay at the leading-edge of the profession globally and our members are the conduit to that technology."

IDA

Questioned more closely about the relationship between the IDA and the AIDI, Seamus says: "We need to support each other. We're a small community. I think the Irish dental profession should be encouraged to buy locally and we can support local dentistry through IDA branches and shows." He does, however, have some reservations about the IDA's Annual Conference. "Not enough time is dedicated to the trade. The coffee breaks are not enough time for all dentists to get around all the stands. We are trying to resolve that with the IDA because the Conference requires two full days from us and we get about one hour of access in each day. That makes the show very expensive for us. I think giving more time dedicated to the trade would be very helpful."

Professionalism

Concluding, Seamus makes two key points. He says that it is in the interest of the dental industry to assist dentists to be as professional as possible. "Dental suppliers have put the structure in place in recent years to ensure the best possible service for dentists." Secondly, he again points out: "We're all on this island together, so it's important that we work together."



Dr Dan McKenna

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<ul style="list-style-type: none"> ■ Hands-on with plastic jaws 	2008 10 May, 14 June	£460 + VAT for individual days
<ul style="list-style-type: none"> ■ Live restorative 	13+14 September, 11 October	Maximum of five delegates
<ul style="list-style-type: none"> ■ Surgery cases and animal jaws 	8 November, 6 December 2009 14 February, 21 March	Course fees include the use of plastic models, animal models and all instrument kits are provided, tea, coffee and snacks on-site including lunch. Accommodation at nearby hotel by own booking arrangement.

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DENTSPLY
FRIADENT

Ridge splitting technique in atrophic anterior maxilla with immediate implants, bone regeneration and immediate temporisation: a case report

Abstract: Narrow alveolar ridges remain a serious challenge for the successful placement of endosseous implants. This article reports a technique for widening the atrophic ridge by splitting the alveolar bone longitudinally and filling the bone gap with collagenised pig bone, treatment of ridges as thin as 2.5mm at the alveolar crest and simultaneous placement of dental implants. Treatment of a 22-year-old female patient with a severely resorbed anterior maxilla is described. 4mm wide by 13mm long threaded Osseotite implants were immediately placed within the split ridge and surrounded with a mixture of autogenous tuberosity and collagenised pig bone. The advantages of this technique for patients include less surgical trauma and reduced treatment time.

Key words: implant, maxillary alveolar atrophy, split crest technique, pig bone, xenografts.

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Introduction

Root-form endosseous dental implants in a variety of designs have come to be used with high success rates to restore function and aesthetics in both completely and partially edentulous patients. A major limitation for successful implant placement remains the problem of inadequate alveolar ridge width. For most standard implants, a minimum ridge width of 6mm is necessary for successful outcomes.¹

Maxillary alveolar atrophy is a longstanding problem that has prevented numerous patients from receiving treatment with dental implants. When maxillary anterior and posterior teeth are lost, resorption of the labial wall of the alveolar socket is typically followed by swift bone loss, often leaving only the previous palatal wall intact.² In such cases, implant placement utilising routine techniques is not possible. Scipioni and co-workers suggest that wherever dental implants are placed, a minimum thickness of 1mm to 1.5mm of bone should remain on both buccal and lingual/palatal aspects of the implant(s) to ensure a successful outcome.³ For situations where ridge width is marginal (i.e., less than 6mm or so), it is often possible to handle complications in

osteotomy preparation, such as bone fenestrations and/or dehiscences, with various graft and barrier materials.⁴ In more extreme cases, however, it becomes necessary to prepare the deficient ridge with some form of separate ridge augmentation procedure, using, for example, either guided bone regeneration or grafting with autogenous bone from sources such as the chin, ribs and iliac crest, either with or without a barrier membrane.⁵⁻⁶

The risks of harvesting autogenous bone may include post-operative pain, nerve injury, arterial injury, cosmetic deformity, haemorrhage and/or infection. As an alternative to these approaches, some clinicians have proposed a variety of alveolar ridge splitting techniques. For example, Summers introduced a ridge expansion technique using hand osteotomes to create localised expansion of the developing osteotomy sites,⁷ whereas Scipioni and co-workers introduced the bone flap in conjunction with hand chisels to create a more extensive expansion of the existing ridge. These two techniques, however, require at least 3mm to 4mm of ridge width and can be extremely difficult or impossible to perform if the remaining bone is primarily

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cortical, as there is a real risk of fracturing the expanding plates of bone and of being unable to stabilise the implant sufficiently to ensure predictable osseointegration.

In 1992, Simion *et al* introduced a split-crest bone manipulation technique.⁸ The goal was to create a self-space-making default by means of provoking a longitudinal greenstick fracture at the top of the bone, which would split the atrophic crest in two parts. Implants could then be placed into the resulting fissure. This technique was indicated when a standard osteotomy could not be created due to a crest width of 4mm or less. Suh and co-workers describe the microsaw technique, which provides better control when preparing a cut along a narrow alveolar ridge and appears less traumatic to the bone. Additionally, less bone is lost because the microsaw creates much thinner cuts compared to conventional burs, which are generally used prior to hand osteotomes or chisels.⁹ Various types of implants have been employed with Simion's ridge-widening procedure.¹⁰⁻¹⁵

This article describes a clinical case of severe anterior maxillary atrophy in which a variation upon Simion's approach to ridge splitting was utilised, followed by grafting with autogenous and pig collagenised bone (Osteobiol Putty, Osteogenos, Spain), placement of four 4mm x 13mm threaded self-tapping Osseotite implants (Implant Innovations, Inc., Palm Beach Gardens, Florida), and immediate provisionalisation with resin crowns for soft tissue management and aesthetic outcomes. The treatment plan called for restoration with porcelain crowns in each implant.

Case report

As originally described, alveolar ridge splitting was achieved by tapping a chisel into the ridge and using the chisel to pry apart the two cortical plates. A standard implant placement protocol was then followed. Subsequently, clinicians have devised a number of variations upon this approach.¹⁶⁻¹⁷

Continuing in that tradition, the current authors have developed an approach to ridge splitting that gives the clinician more control over the procedure. In order to ease the plates apart in the gentlest possible manner and minimise the risk of fracturing the buccal plate, six separate instruments are employed: a carbide tungsten bur; a 2mm chisel; three tapered osteotomes of increasing diameters; and, a twist drill.

Threaded, self-tapping Osseotite implants are then placed into predetermined osteotomies within the channel created. The ICE (incremental cutting edge) apical design of these implants offers a number of advantages. Placement requires 33% less insertion torque and can be accomplished in less time. In addition, the acid-etched surface is known to be a factor for increased success.¹⁸

Once the implants are placed, a mixture of collagenised pig and autogenous bone is inserted into the defects surrounding the implants and over the buccal plate. The site is then covered with a collagen membrane. The grafting material used in this study was Osteobiol Putty, an antigen-free bone paste composed of 80% granulated mix (standard granulometry between 125-250µm) and 20% pure collagen. This material has an average resorption time of less than four months and has osteoconductive properties.¹⁹⁻²¹



FIGURE 1: Intraoral examination of knife-edge alveolar bone morphology.

The provisional abutments and crowns were placed and the soft tissue approximated, to allow the ridge to heal unloaded for a period of six to nine months.

The patient, a 22-year-old female, was referred by her general dentist for implant placement and prosthetic treatment. Clinical examination revealed an anterior maxillary ridge with severe palatal and buccal bone resorption and loss of basal bone.

In this case, the radiograph revealed the presence of cancellous bone between the plates. It also indicated an adequate bone height for implant placement; however, the CT scan occlusal view showed a knife-edge morphology throughout the maxilla and a great resorption in the anterior zone.

Surgery was initiated with a full crest maxillary incision made on the ridge in the bilateral canine regions, slightly toward the palate. In addition, vertical incisions were extended toward the buccal plate for the purpose of providing mucoperiosteal flap relief. The authors emphasise that limited flap reflection should be carried out to expose only the ridge crest, with no attempt made to expose the buccal cortical plate (Figure 1).

A mucoperiosteal flap was elevated using a Molt curette elevator. At this point, the alveolar ridge was examined, and the width of the exposed alveolar ridge was judged to be approximately 2.5mm in diameter in the anterior zone. In addition, the buccal plate had a concave form. A decision was made to proceed with the ridge widening and implant placement. Had the ridge width been less than 1mm, an alternative form of ridge widening (e.g., grafting with bone from the chin) would have been deemed necessary.

In order to gain access to the buccal cortical plates, the periosteum was minimally elevated in the region of the vertical releasing incisions, extending about 1-2mm towards the canine area. Using a HM 31-D014 fissure carbide tungsten bur with a straight handpiece (Denta Care, Cox, Alicante, Spain), a central alveolar ridge cut, approximately 10mm long, was made to facilitate release of the bone.

The bur was then used to create a channel approximately 0.5mm wide along the full length of the alveolar crest. Ideally, this channel

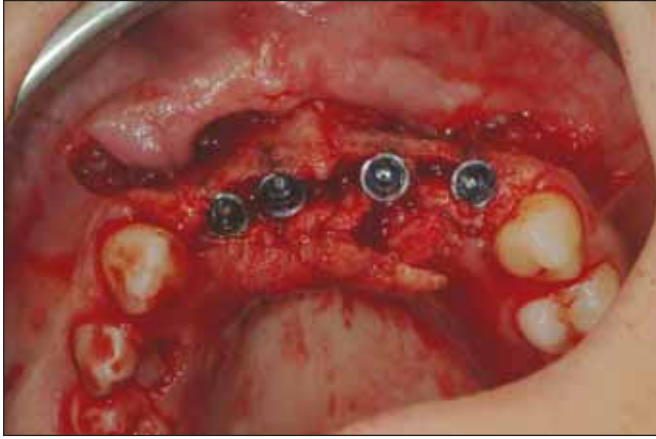


FIGURE 2: Alveolar ridge expanded with four Osseotite NT dental implants in place.



FIGURE 3: Osteobiol Putty sterilised pig bone (Tecross, Turin, Italy), covering the gap, buccal plate and between the implants.

should be approximately 10mm deep to separate the cortical plates completely and reduce the incidence of cortical plate fracture. Following the initial creation of the 0.5mm-wide channel, a 2mm wide by 10mm long chisel was used to begin separating the buccal cortical plate towards the level of the nasal floor in the anterior zone. In this way, the channel was widened to approximately 2mm, and a prepared surgical template was placed upon the ridge. A twist drill was used to mark the position and depth of the four implants, up to 13mm long.

Tapered osteotomes were used next, starting with an instrument that tapered from 1mm to 2.3mm, and followed by one that tapered from 1.5mm to 3mm. Care was taken to follow the path established in the bone with the twist drill. A slow and patient rotating motion was used to increase the separation of the plates by the tapered osteotomes.

To reduce the risk of cortical plate fracture, the twist drill was then used to extend each implant osteotomy to a depth of 13mm. Finally, an osteotome that tapered from 2.9mm to 3.8mm was used with a rotating motion to further widen each sulcus. In order to maximise the bone/implant contact, no additional widening of the osteotomies was undertaken. Instead, four self-tapping 4mm x 13mm implants were placed (Figure 2). The defects around them were filled with pig bone and previously harvested autogenous bone taken from maxillary tuberosity (Figure 3).

The provisional abutments and resin crowns were then placed, the soft tissue was approximated (Figure 4), and the patient was given appropriate oral hygiene instructions. Second stage surgery was scheduled for six months later.

Second-stage surgery revealed the implants to be covered with regenerated bone of a D5 density on the Misch classification system. The width of the ridge was approximately 4.75mm and the healing process appeared to be complete.

At that point, zirconium abutments (Zi-Real, 3i Implants Innovations, Palm Beach Gardens, FL) and porcelain veneer individualised crowns were installed. No problems and no bone resorption were observed during the one-year follow-up period. A panoramic radiograph was taken to control the implants after one year of follow-up.



FIGURE 4: Provisional crowns in place after 15 days healing.

Discussion

Splitting of the atrophic maxillary alveolar ridge in order to enable immediate implant placement is a complicated and demanding surgery and one which, furthermore, requires a long period of post-operative edentulism. However, the alternatives for patients with extremely thin ridges are often even less appealing.¹⁶⁻¹⁷ Many patients cannot wear partial dentures due to the loss of basal bone and unfavourable bone ridges. Widening of the ridge by more traditional grafting techniques usually requires invasive surgery and hospitalisation, with attendant risks of donor site morbidity. It is crucial to preserve the periosteum on the expanding buccal plate of bone by the use of a partial-thickness flap elevation. This allows rapid revascularisation of the expanded bone plate, even with the use of the vertical and horizontal releasing cuts described here.

The ridge splitting technique described in this article enables placement of the implants to be accomplished with the same number of surgeries as required by standard (traditional) implant-placement protocols. Compared to other ridge splitting approaches, which require eight to 12 months, this technique allows for delivery of an overdenture seven months after the implant placement surgery.² Nine months of healing is recommended for delivery of a fixed prosthesis

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to allow bone healing, implant osseointegration and to reduce implant failures.

Using a series of instruments to separate the ridge in a gentle patient manner allows for subtle and successful manipulation of the bone, decreasing the likelihood of cortical plate fracture. Such a fracture need not be catastrophic. Should it occur, the bone can usually be repositioned and gentle pressure applied to stabilise it. However, the authors believe that the less trauma imposed on the bone during the ridge splitting, the faster healing will occur. When the alveolar ridge splitting is performed, the use of a membrane is recommended.

The authors believe the periosteum is the best possible membrane, containing, as it does, a rich supply of osteogenic cells. With this particular technique of alveolar ridge splitting, it is recommended that collagenised pig bone be used to fill in the bone defect, as it resorbs relatively quickly allowing new bone formation around the implants. Osseotite implants were used for this particular case. Furthermore, such material provides a scaffold that both prevents the collapse of the cortical plates and accelerates healing.

Conclusion

Compared to other methods of ridge splitting, the use of immediate tapered implants, bone augmentation and immediate provisionalisation allows treatment of thinner ridges, better control during instrumentation, less trauma to the bone, and less risk of fracturing or perforating the expanding plate of bone.

In this case, the patient's 2.5mm-wide alveolar ridge experienced a net gain of more than 3mm, enabling placement of 4mm-wide implants. The collagenised pig bone maintains the separation between the two cortical plates and led to the new bone formation between implants after four months.

This technique also makes it feasible to place implants into atrophic single-tooth and partially edentulous sites, as the additional control achievable by using multiple instruments to widen the ridge gently and gradually makes it easier to avoid the loss of bone around adjacent teeth. Utilising this technique, ridge widening can be performed throughout the entire maxilla, but it is a challenging option, especially when providing immediate implants with immediate crowns in aesthetically demanding young patients.

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Dental management of the anaemic patient

Précis: This article highlights the different causes of anaemia, and advises on various clinical scenarios. It also recommends a form of dental management for the general dental practitioner.

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Introduction

Anaemia is a feature of underlying disease, resulting in a decrease in the normal amount of circulating haemoglobin. Anaemia may arise from bleeding, or from increased destruction or decreased production of red blood cells. The general clinical features of anaemia include fatigue, breathlessness on exertion, pallor, tachycardia and postural hypotension.¹ As well as these general features, the many types of anaemia also have oral manifestations, and the disease itself can affect the provision of dental care. Oral changes frequently precede many of the systemic indicators of anaemia. Recognition of these changes by the dentist can lead to early diagnosis and the initiation of therapy to prevent more serious sequelae.

This article will discuss the life cycle of the red blood cell (**Figure 1**), and the oxygen carrying component (haemoglobin) (**Figure 2**), and the more common anaemias, their oral manifestations and suggested modifications in dental treatment (**Table 1**).

Classification of anaemia based on mechanism of cause

Deficiency anaemia

a) Iron deficiency

This is the most common of all the anaemias, affecting approximately 10% of the population in developed countries and as much as 25-50% in developing countries.² In developing countries, low dietary intake due to a predominantly vegetarian diet is an important cause. However, in developed countries, chronic blood loss is the most important cause of iron deficiency anaemia. This loss may occur from the gastrointestinal tract (peptic ulcers, haemorrhoids, colon cancer) or the female genital tract (menstrual or menopausal bleeding). Malabsorption due

to either a gastrectomy or as part of a malabsorption syndrome (coeliac disease) can also cause iron deficiency anaemia.

b) Megaloblastic (large red blood cell) anaemia

There are two main types of megaloblastic anaemia. One is caused by folate deficiency and the other by insufficient vitamin B12. The pathogenesis of megaloblastic anaemia is an impairment of DNA synthesis, which results in a delay in nuclear maturation and cell division. This results in enlargement of the red blood cell precursors (megaloblasts), which gives rise to abnormally large red blood cells. The derangement in maturation contributes to anaemia in the following ways:

- due to the defective DNA synthesis, some of the megaloblasts undergo programmed cell death in the marrow without producing any red blood cells; and,
- the large red blood cells produced by megaloblasts are prone to premature destruction in the spleen.

Folate deficiency

High risk of folate deficiency is associated with a poor diet and increased metabolic requirements, e.g., pregnant women and patients with chronic haemolytic anaemias. The principal site of folate absorption is in the upper third of the small intestine, and therefore malabsorptive disorders such as coeliac disease will impair this process. Drugs such as phenytoin inhibit folate absorption, while others such as methotrexate inhibit folate metabolism. Within cells folate undergoes reduction to tetrahydrofolate. Tetrahydrofolate is involved in the synthesis of purines and thymidylate, the building blocks of DNA, and therefore its deficiency results in inadequate DNA synthesis as described above, characteristic of megaloblastic anaemia.

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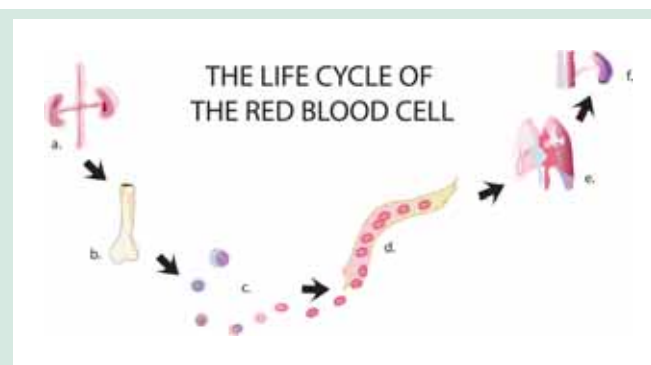


FIGURE 1: The life cycle of the red blood cell.

- Kidneys (peritubular cells) respond to a lower than normal oxygen concentration by releasing the hormone erythropoietin.
- Erythropoietin travels to the bone marrow and stimulates an increase in the production of red blood cells.
- The bone marrow produces red blood cells from stem cells found inside the marrow.
- Red blood cells enter the circulation.
- The heart and lungs work to supply continuous movement and oxygenation of red blood cells.
- After approximately 120 days, damaged or old red blood cells are destroyed, primarily by the spleen.

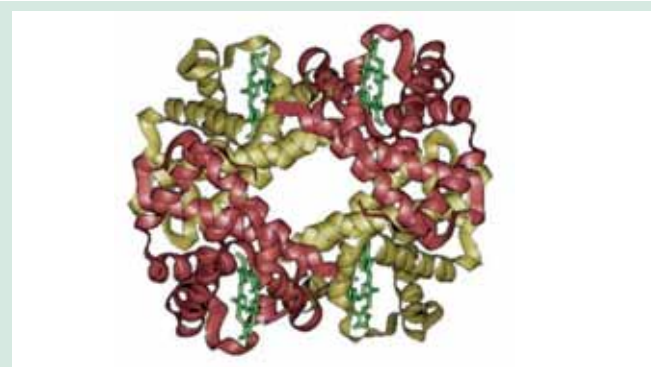


FIGURE 2: Haemoglobin.

Haemoglobin is the iron-containing oxygen transport metalloprotein in the red blood cell. The haemoglobin molecule is an assembly of four globular protein subunits. Each subunit is composed of a protein chain tightly bound to a non-protein heme group. The heme group consists of iron(Fe^{2+}) held in a porphyrin ring. The iron is the site of oxygen binding.

The image shows a three-dimensional structure of haemoglobin. The four globular protein subunits are shown in red and yellow. The heme groups are shown in green. The most common haemoglobin type is a tetramer (four subunit proteins) called haemoglobin A, consisting of two alpha and two beta protein subunits non-covalently bound. Mutations in the globin chain are associated with the haemoglobinopathies such as sickle cell disease (beta-globin chain) and thalassaemia (alpha- or beta-globin chain).

TABLE 1: Criteria for treatment suitability in a general dental practice

A thorough investigation into the cause of the anaemia, and if necessary discussion with the patient's general medical practitioner/hospital specialist, is important prior to starting any dental treatment. Dental management issues:

- Local anaesthesia: safe to use in all causes of anaemia. Avoid prilocaine with sickle cell disease.
- Relative analgesia: avoid in vitamin B12 deficiency. Can be used in all other causes of anaemia provided oxygen levels are not less than 30%.
- Intravenous sedation: can be used in all causes of anaemia provided oxygen levels are not less than 30% and facilities are always available

to provide 100% oxygen. However, these patients must be investigated by their general medical practitioner/hospital specialist before sedation is offered.

- Antibiotic regimen: recommended with all dental procedures that are likely to cause gingival bleeding in patients with sickle cell disease, aplastic anaemia, post splenectomy beta-thalassaemia major and hereditary spherocytosis.
- Discussion with a hospital-based dental department/specialist centre should be sought before commencing complex dental treatment/extractions on the following groups of patients:
 - Sickle cell disease.
 - Beta-thalassaemia major.
 - Post splenectomy hereditary spherocytosis.
 - Aplastic anaemia.

Vitamin B12 deficiency

Inadequate levels of vitamin B12, which cause a megaloblastic anaemia, may also result in a demyelinating disorder involving the peripheral nerves and ultimately the spinal cord (subacute combined degeneration of the spinal cord). Vitamin B12 is necessary for recycling of tetrahydrofolate, and therefore its deficiency reduces the availability of the form of folate that is required for DNA synthesis. This results in inadequate cell division in the marrow, leading to the production of large erythrocytes, which have small immature nuclei and a large mature cytoplasm.²

Pernicious anaemia is the most common cause of vitamin B12 deficiency. This is essentially an autoimmune disorder resulting in inadequate gastric production of intrinsic factor, which is necessary to absorb vitamin B12.³ Intrinsic factor binds to vitamin B12, forming a complex that can cross

the mucosa in the terminal ileum, protecting it from proteolysis. Some 85% of patients have serum antibodies to the gastric parietal cells. Dietary deficiency of vitamin B12 is normally only found in strict vegetarians.⁴

Along with the general clinical features of anaemia, these patients may also have neurological changes manifested as symmetrical numbness, tingling, or burning in feet/hands, followed by unsteadiness in gait and loss of position sense.²

Increased destruction of red blood cells (haemolytic anaemia)

a) Haemoglobinopathies

These are a group of hereditary disorders characterised by the presence of a structurally abnormal haemoglobin.² The normal haemoglobin is shown in Figure 2.

Sickle cell anaemia

This is caused by a mutation in the gene encoding the beta-globin chain, causing the formation of sickle haemoglobin (HbS). On deoxygenation, HbS undergoes polymerisation. This results in distortion of the red blood cells leading to a sickle shape. Sickling is initially reversible by oxygenation; however, membrane damage occurs with each episode of sickling. With repeated episodes of deoxygenation, the red blood cells eventually become rigid and irreversibly sickled. These dysfunctional red blood cells are recognised and removed by mononuclear phagocyte cells producing a chronic haemolytic anaemia. Sickling of red blood cells also produces widespread microvascular occlusions, resulting in ischaemic tissue damage. This microvascular occlusion secondary to sickling can be triggered by infection, inflammation, dehydration and acidosis.

Sickle cell anaemia primarily affects people of Afro-Caribbean descent. Mediterranean, Middle Eastern and East Indian people may also be at risk. In patients with sickle cell disease, approximately 90% of the haemoglobin is HbS. Patients with the sickle cell trait have only 30% of the total red blood cell haemoglobin as HbS.⁵

Thalassaemia

This is a heterogeneous group of genetic disorders characterised by a decreased synthesis of globin chains, leading to decreased production of haemoglobin and a hypochromic microcytic anaemia. This defect may involve either the alpha- or beta-globin chains and is therefore classified into alpha- and beta-thalassaemia. The heterozygous form of the disease (thalassaemia minor) is mild, with minimal clinical expression. The homozygous form (beta-thalassaemia major) produces the most severe signs and symptoms, including severe anaemia, hepatosplenomegaly, growth retardation and skeletal changes, increased susceptibility to infection, endocrine dysfunction, and cardiac failure following iron deposition (from long-term blood transfusions) in the myocardium.⁶

b) Hereditary spherocytosis

This is a predominantly autosomal dominant disorder characterised by a defect in the red blood cell membrane. This renders the cell membrane less stable. The cell becomes spheroidal, less deformable, and vulnerable to splenic sequestration and destruction.⁴ The clinical expression ranges from asymptomatic to a severe life-threatening haemolytic anaemia.

c) Glucose-6-phosphate dehydrogenase deficiency

This is the most common metabolic disorder of the red blood cell. This x-linked hereditary disorder affects mostly Africans and people of Mediterranean descent.⁴ This enzyme is important in glutathione metabolism within the red blood cell. Deficiency of this enzyme reduces the ability of the red blood cells to protect themselves from oxidative injury (free radicals). Oxidative injury from free radicals results in denaturation of the haemoglobin molecule, leading to an inability of the red blood cell to effectively transport oxygen

throughout the body. The damaged red blood cells are broken down in the spleen, leading to a haemolytic anaemia. This disorder produces no symptoms unless the red blood cells are subjected to oxidant injury by exposure to certain drugs (antimalarials, sulphonamides, aspirin, vitamin K derivatives) or infections.²

Impaired production of red blood cells

a) Aplastic anaemia

Aplastic anaemia is characterised by hypocellularity of the bone marrow, and therefore insufficient numbers of haematopoietic stem cells, leading to a pancytopenia characterised by deficient production of erythrocytes, granulocytes and platelets.⁷ The cause is unknown in approximately 50% of patients but associations with the development of aplastic anaemia have been made with certain drugs (cytotoxics, chloramphenicol, gold), benzene exposure, insecticides and infections (viral hepatitis, measles and HIV).⁷ General clinical features are the result of the deficiency in red blood cells, white blood cells and platelets, and include anaemia, increased susceptibility to infection and bleeding.

b) Anaemia of chronic disease

This is the most common anaemia in hospitalised patients. It occurs in a variety of chronic inflammatory conditions including rheumatoid arthritis, chronic bacterial infections (osteomyelitis, bacterial endocarditis, lung abscess) and neoplasms (Hodgkin's disease, carcinomas of lung and breast).

The common feature among the different diseases is that all induce a prolonged state of systemic inflammation due to the release of inflammatory mediators such as interleukin 1 (IL-1), tumour necrosis factor (TNF) and interferon-alpha. This results in inflammation-induced sequestration of iron within the cells of the reticuloendothelial system.²

Oral manifestations of anaemia

The potential oral manifestations common to all causes of anaemia include angular stomatitis, glossitis, pale oral mucosa, oral candidiasis, recurrent aphthous ulcers, erythematous mucositis and burning sensations in the mouth. In addition, the following causes of anaemia have other specific manifestations:

Iron deficiency anaemia

Plummer-Vincent syndrome is characterised by the triad of iron deficiency anaemia, koilonychia and dysphagia. This group of patients are at increased risk of pharyngeal carcinoma, and thus regular monitoring for the development of malignancy is imperative in treating patients with this syndrome.⁴

Sickle cell disease

Hypoplasia of the dentition and delayed eruption of teeth are common. Other potential problems include mandibular osteomyelitis, anaesthesia of the mandibular nerve and asymptomatic pulpal necrosis.⁵

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Beta-thalassaemia major

Enlargement of the maxilla occurs due to hypertrophy and expansion of erythroid marrow. This results in flaring and spacing of the maxillary anterior teeth, increased overjet, anterior open bite and varying degrees of malocclusion.⁶

Hereditary spherocytosis

This severe haemolytic anaemia can lead to increased erythroblast activity, resulting in marrow hyperplasia and enlargement of the facial skeleton, leading to a protrusive maxillary anterior region.⁸

Aplastic anaemia

Additional oral manifestations in this group of patients include submucosal haemorrhages, gingival swelling, herpetic lesions, spontaneous gingival bleeding and periodontal disease.⁷

Dental management issues

Local anaesthesia

Local anaesthesia is safe to use for all causes of anaemia; however, patients with sickle cell disease and glucose-6-phosphate dehydrogenase deficiency must avoid prilocaine as an overdose can cause methaemoglobinaemia.⁹ Methaemoglobin is incapable of binding and carrying oxygen. This can result in tissue hypoxia.

Intravenous sedation

Intravenous sedation can be used in patients with deficiency anaemias as well as hereditary spherocytosis and glucose-6-phosphate dehydrogenase deficiency, if the haemoglobin level is only moderately reduced and supplemental oxygen can be given.⁹

With regard to sickle cell disease, it is essential that these patients do not become hypoxic. As long as the midazolam is titrated appropriately, the dentist provides at least 30% oxygen and has facilities to provide 100% oxygen, then procedures under intravenous sedation can be safely performed on these patients.

Pulse oximetry may be unreliable and cyanosis appears later in patients with anaemia; therefore, careful monitoring of respiration and prompt intervention are essential.¹⁰ It is important to have close liaison with the general practitioner/specialist before offering sedation to these patients. Many will require hospital support.

Relative analgesia

Relative analgesia can be used in all causes of anaemia except vitamin B12 deficiency, provided oxygen levels are not less than 30%, and facilities to provide 100% oxygen are always available.⁹

Orthodontics

Beta-thalassaemia major and hereditary spherocytosis can lead to enlargement of the facial skeleton, with spacing of the teeth as well as increased overjet and anterior open bite. Management will require constant co-ordination between the orthodontist and the haematologist. If a splenectomy is considered early, then adverse facial development may be prevented.^{8,11}

Specific dental recommendations

Sickle cell disease

- a) A sickling crisis can be initiated by infection; therefore, prevention and aggressive early treatment of oral infection is essential in the management of these patients.⁴
- b) Routine dental treatment should only be performed during non-crisis periods.
- c) Minimising stress reduces the risk of a crisis; therefore, short, morning appointments should be given so that patients are less likely to be fatigued.⁵
- d) Local anaesthetic is preferable to other forms of anaesthesia because it does not lower the oxygenation of blood.⁵ Avoid prilocaine due to the risk of methaemoglobinaemia.
- e) If proper oxygenation is provided and carefully monitored, nitrous oxide is not contraindicated.⁵
- f) General anaesthetic and intravenous sedation increases the risk of sickling in sickle cell disease, due to hypoxaemia and vascular stasis, unless sufficient oxygenation is maintained throughout.⁵
- g) Patients with sickle cell trait usually present no problems for routine dental treatment. General anaesthesia can be carried out safely provided adequate oxygenation is maintained throughout the procedure.¹²
- h) for oral analgesia, paracetamol and codeine are recommended. Avoid aspirin as it may lead to an acidosis.⁵
- i) Antibiotic prophylaxis is recommended with all dental procedures that are likely to cause gingival bleeding.⁵ Infection may lead to a sickling crisis.

Beta-thalassaemia major

- a) There is an increased caries rate in these patients, which is associated with neglect. Parents tend to be more concerned with the serious physical problems, paying less attention to the dental health. Generally, dental care is only sought when the child is in pain.¹¹ It is very important to inform parents about the need for prevention. This will entail oral hygiene instruction and information concerning the use of fluoride applications and fissure sealants. Dietary advice should also be given.
- b) These patients are at increased risk of blood-borne viral infections due to repeated blood transfusions.⁶
- c) Intravenous sedation carries the risk of hypoxia. The dentist must provide at least 30% oxygen and always have facilities to provide 100% oxygen. Patients should be investigated by their general medical practitioner before sedation is offered.
- d) Repetitive treatment should be avoided to minimise infection.⁶
- e) Patients with a splenectomy are at increased risk of infection. Antibiotic prophylaxis is recommended before invasive procedures.⁶ Patients are often on a low daily dose of antibiotics following a splenectomy. This is not enough to provide protection against invasive procedures.

Aplastic anaemia

- a) Patients with aplastic anaemia are at risk of systemic infections from oral sources. These patients should have regular dental examinations, with early treatment when appropriate.⁷
- b) Discussion with a specialist centre should be sought before commencing extractions and more complex restorative treatment to ensure appropriate management of acute complications that may arise.
- c) Dentists play a role in the diagnosis of aplastic anaemia because oral manifestations are common and are often first noted during routine inspections. When gingival or mucosal bleeding without a local cause is detected, a blood dyscrasia should form part of the differential diagnosis.¹³

Conclusions

Anaemia is a feature of many diseases. Recognition of the oral manifestations may help in the diagnosis of an underlying systemic disease. Special emphasis on prevention and early treatment of infection is necessary. With the increase in immigration into Ireland, dentists are now more likely to encounter patients with the more rare hereditary causes of anaemia. An understanding of the implications underlying each disease process can help aid the proper dental care of these patients.

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Emergency management of avulsed permanent incisors: knowledge and attitudes of teachers in 15 Irish schools

Précis:

In this study, the majority of teachers possessed inadequate knowledge regarding the management of tooth avulsion and would benefit from instruction in dental first aid.

Abstract:

Statement of the problem: Appropriate immediate management of an avulsed permanent incisor is critical because a delay in replantation significantly reduces the long-term prognosis of the tooth.

Purpose of the study: This study was designed to examine the knowledge and attitudes of teachers with regard to the emergency management of avulsed permanent incisors.

Materials and methods: A total of 198 teachers in 15 schools in Balbriggan, Co. Dublin, or within a 15km radius of the town, were invited to take part in the study. Data were collected by use of a self-administered questionnaire, which had been employed in a previously published study.

Results: A total of 139 teachers returned the questionnaire, a response rate of 70.2%. While almost all (96.4%) of these teachers stated that they supervised children during sports or lunch break, the majority neither possessed a recognised first aid qualification (80.6%) nor had received advice on the management of an avulsed permanent incisor (74.8%). Perhaps unsurprisingly, the majority of respondents (81.3%) stated that they would not be prepared to replant a tooth avulsed by a child in their care. Reassuringly, however, 45.3% of respondents chose milk as an appropriate transport medium for the tooth. A total of 131 respondents (94.2%) expressed a desire for further information and advice.

Conclusions: The majority of teachers possessed inadequate knowledge of emergency treatment of tooth avulsion. It is the authors' view that teachers and other individuals who supervise children in schools would benefit from instruction in dental first aid.

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Introduction

Prompt and appropriate management of an avulsed permanent incisor is critical. Immediate replantation is the treatment of choice.¹ Delay in replantation significantly reduces the long-term prognosis of the tooth.² In addition, the medium in which the tooth is stored prior to replantation has a bearing on the success of this procedure,³ with the preservation of vitality of the cells over the root being fundamental.⁴ Primary school teachers supervise children during sporting activities and breaks, when they are at risk of permanent tooth avulsion.⁵ Previous research conducted in the United

Kingdom and Hong Kong has, regrettably, shown that teachers have very little knowledge of dental first aid.⁶⁻⁸ To date, no information has been available in respect of the knowledge of dental first aid possessed by primary school teachers in the Republic of Ireland. This study sought to make good this deficit.

Materials and methods

A total of 15 schools, all of which educated children aged 4-12 years, were identified in Balbriggan, Co. Dublin, or within a 15km radius of the town. These schools were invited to take part in the study. A self-

FIGURE 1: Questionnaire used in the study.

administered questionnaire (Figure 1), previously employed in a study conducted in Wales,⁷ was chosen as the method of data collection. Copies of the questionnaire, together with pre-paid reply envelopes, were delivered in person to the head teacher of each school for distribution to 198 individual teachers. In an attempt to improve the response rate, a phone call was made to the head teacher one week later to ascertain the completion rates of the questionnaires in the school. A period of two weeks was allowed for the return of the questionnaires. Responses were entered onto a personal computer and Microsoft Excel used for analysis.

Results

Completed questionnaires were returned by 139 teachers (70.2%), 115 (82.7%) female and 24 (17.3%) male. Nearly half (67; 48.2%) of the teachers who responded were also parents. The majority of respondents stated that they supervised sports (101; 72.7%) or lunch breaks (134; 96.4%). Some 53 teachers (30.9%) reported that they had experience of incidents in which a tooth had been avulsed. Just 27 teachers (19.4%) stated that they possessed a recognised first aid qualification. Likewise, only 35 (25.2%) had ever received advice on what to do in the event of an accident where a permanent tooth was avulsed. Table 1 illustrates the source of this advice.

When questioned about the possibility of replanting an avulsed tooth, 72 respondents (51.8%) were not even aware that it was possible to save an avulsed permanent tooth by replantation. Various responses were received in relation to the optimum extra-oral time, ranging from less than 10 minutes to more than 24 hours.

Although 67 teachers (48.2%) thought a permanent tooth could be saved by replantation, only 26 respondents stated that they would feel confident to undertake this procedure. The most commonly cited reasons for this lack of confidence were:

- lack of training or expertise (87 respondents);
- fear of frightening or hurting the child (35 respondents);
- fear of infecting the tooth or socket (34 respondents); and,
- belief that it is something that should be done by a dentist (33 respondents).

Knowledge concerning the most appropriate method of cleaning a dirty avulsed tooth prior to replantation was investigated by

TABLE 1: Sources of advice on the emergency management of an avulsed permanent tooth

	Number (%) of respondents (n=35) (not mutually exclusive)	
Teacher training	6	(17.1%)
First aid course	18	(51.4%)
Dental surgery	6	(17.1%)
Hospital	0	
Other	9	(25.7%)

TABLE 2: Suggested transport medium for an avulsed permanent tooth

	All answers Number (%) of respondents (not mutually exclusive)	
Tap water	10	(7.2%)
Saline	8	(5.7%)
Ice	19	(13.7%)
Paper tissue	7	(5.0%)
Plastic bag/cling film	12	(8.6%)
Milk	63	(45.3%)
Kitchen foil	5	(3.6%)
Antiseptic solution	3	(2.2%)
Inside the child's cheek	12	(8.6%)

presentation of a list of options. A total of 67 respondents (48.2%) stated (correctly) that they would rinse it under running water. Reassuringly, few (5, 3.6%) indicated that they would scrub such a tooth clean. Some 16 respondents (11.5%) stated that they would not clean a dirty tooth prior to replantation.

The teachers were asked to choose what they felt was the best medium in which to transport an avulsed tooth to the dentist. Their responses are illustrated in Table 2.

A total of 113 respondents (81.3%) believed that they would be able to distinguish between primary and permanent teeth. Some 23 teachers (16.6%) believed that a primary tooth should be replanted, and 54 teachers (38.9%) were of the opinion that a tooth that appeared to be broken should be replanted.

Finally, teachers were asked to indicate whether they felt that they would benefit from more information in relation to the management of avulsed teeth; 131 respondents (94.3%) answered in the affirmative.

Discussion

Perhaps the most concerning observation from the results of this study is the finding that less than 20% of respondents had a recognised basic first aid qualification. This percentage is markedly lower than those previously reported.⁷⁻⁹ A similar study in Cardiff, Wales demonstrated that 48.5% of primary school teachers had a basic first aid qualification,⁷ while a study conducted in Istanbul, Turkey revealed that 38.4% of teachers questioned had received similar training.⁹ Perhaps more worryingly, it is also low in comparison to other lay populations. In a study conducted in North West England, 53.6% of PE teachers, school nurses and secretaries, parents, and attendants in

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swimming baths and leisure centres questioned possessed a first aid qualification.¹⁰ A programme to introduce compulsory first aid training with periodic updates would undoubtedly benefit teachers in Irish schools.

Only just over one-quarter of respondents had ever received advice on what to do in the event of a permanent tooth being avulsed. This figure is low in comparison to reports from other countries. In the study conducted in Wales,⁷ 33.6% of primary school teachers stated that they had received advice on the procedure to be followed in such a situation. The appropriate immediate management of an avulsed permanent incisor is crucial, as this will ensure the best long-term prognosis. Optimal healing is permitted when the tooth is out of its socket for the shortest time possible, is stored in a physiological medium and contamination controlled.² It is, therefore, disappointing that only 18.7% of respondents stated that they would feel confident enough to replant a permanent tooth avulsed by a child in their care. In the light of this finding, the authors consider that teachers should at least have knowledge of appropriate handling and storage methods, and be aware of the necessity to facilitate immediate transfer to an appropriate source of care.

Many studies have investigated the ideal transport medium for an avulsed tooth.¹²⁻¹⁷ Although special transport media are available, milk is the easiest to access in an emergency and is, therefore, most commonly advocated for short-term storage. There is evidence that teeth stored in milk on ice show a better survival rate of the periodontal ligament.¹⁷ Encouragingly, 45.3% chose milk as their first choice of medium. Interestingly, the next most popular choice was ice (13.7%). Respondents may have chosen this latter medium on account of its role in the transport of organs and limbs.

It is of concern that 16.6% of respondents thought that a primary tooth should be replanted, given the potential for damage to the developing permanent successor. Likewise the public, and teachers in particular, should be aware that incisors that are both avulsed and fractured may be restorable.

As long ago as 1989, a poster providing advice to be followed in the event of an avulsion injury was available in the United Kingdom. Entitled 'Prevent a Child Losing his Smile', this was aimed at lay people and was sent to the Community Dental Services to be more widely distributed to schools, health centres and sports centres. A variation of the poster entitled 'Why Lose a Smile' was published for people specifically involved in sports and was distributed to sports centres and clubs. Over 200,000 posters were circulated to various establishments in the UK. The authors understand that, in the Republic of Ireland, the Health Service Executive has recently produced a poster that provides clear advice on the management of an avulsed tooth: this action is to be applauded.

Conclusion

In this study, the majority of teachers possessed inadequate knowledge to deal appropriately with an incident in which a permanent incisor was avulsed by a child in their care. This may have implications for the education of teachers and others involved in the supervision of children in schools in Ireland.

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Plaque – always the same but continually different

Were you aware that despite 98% of Irish dental professionals believing that they talk to their patients about plaque, a recent survey showed that just over a quarter of the population don't know what plaque is and three quarters have no recollection of talking to their dentist or hygienist about it?³

Plaque is ever present. It is with us, and with our patients, day and night, professionally and personally. But is it constant or do changes in its composition have special implications for dental care professionals?

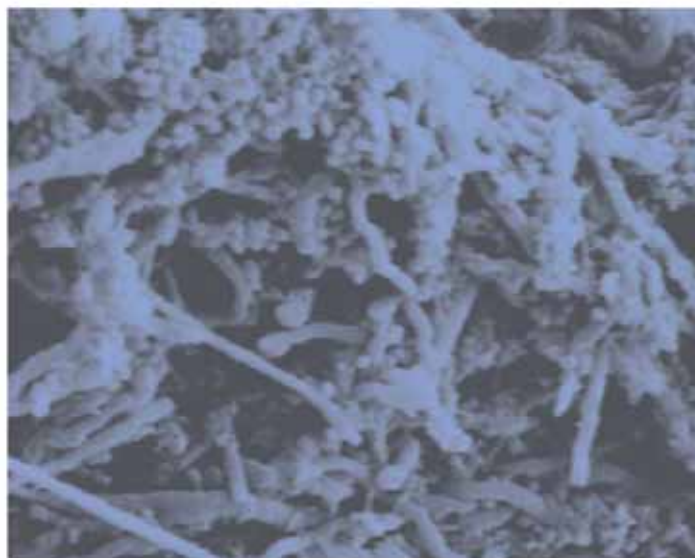
On the surface, and there's an awful joke there somewhere, plaque may seem a fairly dull commodity. We tend to regard it as a constant and yet it is incessantly changing as it 'matures' with the bacterial balance varying with time. The oral microflora also varies in composition on different surfaces as well as at sites on those surfaces (e.g. fissures, gingival crevice), as the subtle properties of a habitat influence the ability of individual species to colonise and dominate¹. Bacteria are the predominant micro-organisms found in the mouth, with a range of Gram positive and negative species present but in addition, yeasts, mycoplasmas and protozoa can be found on occasions in the healthy oral cavity².

However, there are many other factors apart from the passage of time and the site that alter the composition of plaque. It modifies itself with changes in our lives as our host defences alter with age, diet, smoking habits, state of health, lifestyle, saliva flow and oral hygiene to mention just a few. In all of these situations we need to

advise and guide our patients in how to control plaque in order to minimise its potential detrimental effects.

Babies acquire resident oral microflora from birth mainly by passive transfer from the mother but a major change occurs when teeth erupt and their hard surfaces become available for microbial colonisation with new habitats such as fissures. During puberty the frequency of spirochaetes and black-pigmented anaerobes increases, possibly due to changes in hormone levels. Likewise, the immune response can wane in older age and there are consequent variations in the composition of plaque.

Lifestyle also has its effects. The regular intake of carbohydrates in young people can cause the enrichment of acid-tolerant and cariogenic species such as mutans streptococci and lactobacilli.



Smoking has been shown to affect bacterial counts, and is a significant risk factor for periodontal diseases with increased levels and prevalence of potential periodontal pathogens such as *P. gingivalis*.

Treating each patient as an individual, understanding their lifestyle and other possible factors is essential so that we can provide the most appropriate care. This is likely to include oral hygiene advice, dietary counselling and active preventive and treatment interventions. Adjunctive measures are also applicable, chewing Orbit Complete sugarfree gum with xylitol, for example, helps

stimulate saliva to neutralise plaque acids after eating and drinking especially when snacking throughout the day. In addition to being sugarfree Orbit Complete contains xylitol which is proven to help reduce the formation of plaque.

Join the Oral Healthcare Programme

To find out more about how you can educate your patients on fighting plaque and to receive free resources for your practice, please visit www.BetterOralHealth.info/plaque where you can join up to become a member of the new Wrigley Oral Healthcare Programme by Orbit Complete.

Facts

- Chewing Orbit Complete stimulates saliva by up to 10 times the normal resting rate⁴
- Orbit Complete helps stop acid attacks by balancing the pH in the mouth⁵
- Orbit Complete helps inhibit the build-up of plaque⁶

¹Marsh PD, Percecil BS. The oral microflora – friend or foe? Can we decide? *Int Dent J* 2006 56: 233-239.

²Marsh P, Martin MV. *Oral Microbiology* 4th ed. Oxford: Wright, 1999.

³*Ipsos Mori Health*, 2007.

⁴Dawes C, Macpherson MD. Effects of nine different chewing-gums and lozenges on salivary flow rate and pH. *Caries Research* 1992 26: 176-182.

⁵Manning RH, Edgar WM. pH changes in plaque after eating snacks and meals, and their modification by chewing natural or sugar-free gum. *Br Dent J* 1993 174: 241-244.

⁶Gordon JM, Cronin M, Reardon RC (1990) Ability of a xylitol chewing gum to reduce plaque accumulation. *J. Res.* 69:136.



Orbit Complete is the Wrigley Company's oral care brand of sugarfree chewing gum.



ABSTRACTS

Periodontopathic microorganisms in peripheral blood after scaling and root planing

Inés Lafaurie, G., Mayorga-Fayad, I., Fernanda Torres, M., Marcela Castillo, D., Rosario Aya, M., Barón, A., Andrea Hurtado, P.

Aim

The objective of this study was to evaluate the frequency of periodontopathic and other subgingival anaerobic and facultative bacteria in the bloodstream following scaling and root planing (SRP).

Material and methods

Forty-two patients with severe generalised chronic periodontitis (GChP) and generalised aggressive periodontitis (GAgP) were included in the study. Four samples of peripheral blood were drawn from the cubital vein at different times: pre-treatment (immediately before the SRP procedure [T1]); immediately after treatment (T2); 15 minutes post treatment (T3); and, 30 minutes post treatment (T4). In order to identify the presence of microorganisms in blood, subcultures were conducted under anaerobic conditions.

Results

Some 80.9% of the patients presented positive cultures after SRP and it occurred more frequently immediately after treatment; however, 19% of the patients still had microorganisms in the bloodstream 30 minutes after the procedure. The periodontopathic microorganisms more frequently identified were *Porphyromonas gingivalis* and *Micromonas micros*. *Campylobacter* spp., *Eikenella corrodens*, *Tannerella forsythensis*, *Fusobacterium* spp. and *Prevotella intermedia* were isolated less often. *Actinomyces* spp. were also found frequently during bacteraemia after SRP.

Conclusions

In this study, SRP induced bacteraemia associated with anaerobic bacteria, especially in patients with periodontal disease.

Journal of Clinical Periodontology 2007; 34 (10): 873–879.

Evaluation of formocresol versus ferric sulphate in primary molar pulpotomy: a systematic review and meta-analysis

Peng, L., Ye, L., Guo, X., Tan, H., Zhou, X., Wang, C., Li, R.

Aim

To present a systematic review of the effects of formocresol and ferric sulphate when used as medicaments in pulpotomised primary molar teeth.

Methodology

The study list was obtained by using MEDLINE, the Cochrane Library, EMBASE and SCI search. Only those papers which met the inclusion

criteria were accepted. The quality of studies used for meta-analysis was assessed by a series of validity criteria according to Jadad's scale. A systematic review and meta-analysis were performed.

Results

Eleven clinical studies comprising four randomised clinical trials (RCTs), four controlled clinical trials (CCTs), and three retrospective studies were included. The results of the meta-analysis of six prospective clinical trials suggested that the two popular pulpotomy medicaments were not significantly different in terms of clinical outcomes, radiographic findings, prevalence of apical and furcal destruction, internal root resorption or pulp canal obliteration. The relative risk (RR) value and 95% CI for those parameters were 0.72 (0.43–1.23), 0.87 (0.59–1.30), 0.67 (0.27–1.66), 1.77 (0.56–5.58), and 1.41 (0.63–3.15), respectively. The overall clinical and radiographic success rates based on the data of treatments with ferric sulphate from the 11 studies included ranged from 78% to 100% (mean 91.6 ± 8.15%) and from 42% to 97% (mean 73.5 ± 18.40%), respectively.

Conclusions

In primary molar teeth with exposure of vital pulps by caries or trauma, pulpotomies performed with either formocresol or ferric sulphate have similar clinical and radiographic success. Ferric sulphate may be recommended as a suitable replacement for formocresol.

International Endodontic Journal 2007; 40 (10): 751–757.

Guidelines for the management of traumatic dental injuries. III. Primary teeth

Therese Flores, M., Andersson, L., Andreassen, J.O., Bakland, L.K., Malmgren, B., Barnett, F., Bourguignon, C., DiAngelis, A., Hicks, L., Sigurdsson, A., Trope, M., Tsukiboshi, M., von Arx, T.

Trauma to the primary dentition presents special problems and management is often different from that of permanent teeth. An appropriate emergency treatment plan is important for a good prognosis. Guidelines are useful for delivering the best care possible in an efficient manner. The International Association of Dental Traumatology (IADT) has developed a consensus statement after a review of the dental literature, and group discussions. Experienced researchers and clinicians from various specialties were included in the group. In cases in which the data did not appear conclusive, recommendations were based on the consensus opinion of the IADT board members. The guidelines represent the current best evidence based on literature research and professional opinion. In this third article of three, the IADT Guidelines for the management of traumatic injuries in the primary dentition are presented.

Dental Traumatology 2007; 23 (4): 196–202.

Oral implants in radiated patients: a systematic review

Colella, G., Cannavale, R., Pentenero, M., Gandolfo, S.

Purpose

Oral malignancy is often treated with a combination of surgery and radiation therapy (RT). The aim of this systematic review was to examine the effects of pre- and post-implantation RT on dental implant failure.

Materials and methods

The literature published from 1990 through 2006 was reviewed for studies assessing pre- and post-implantation RT. Potential studies were identified by searches of PubMed, SCIRUS and the Cochrane Central Register of Controlled Trials (CENTRAL). The incidence of implant failure has been linked to the following variables: post-versus pre-implantation RT; site of implant placement; RT dose; delay from RT to implant placement; and, timing of implant failure after placement.

Results

Similar failure rates were found for implants placed post RT compared to those placed pre RT (3.2% and 5.4%). In pre-implantation RT, the implant failure rate was lower for the mandible (4.4%) in comparison to the maxilla (17.5%; OR = 4.63; 95% CI: 2.25 to 9.49). Other results did not reach statistical significance. No failures were observed in association with an RT dose lower than 45Gy. All implant failures observed occurred within 36 months of RT, and most occurred between one and 12 months after placement.

Conclusion

Notwithstanding the low number of implants evaluated, this review showed a similar failure rate for implants placed post RT and those placed pre RT (3.2% and 5.4%, respectively).

Int J Oral Maxillofac Implants 2007; 22 (4): 616-622.



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DIARY OF EVENTS

December 2007

Metropolitan Branch, IDA – Christmas 50th Anniversary Party

December 1 Minerva Suite, RDS, Ballsbridge, Dublin 4
Dinner, drinks and dancing with jazz duo (ex Moving Hearts) and the Paul Ashford Band.

January 2008

Munster Branch, IDA – Scientific Meeting

January 8 Clarion Hotel & Suites (formerly Ryan's), Ennis Rd, Limerick
Meeting will commence at 7.45pm. Speaker is Professor Frank Burke and the topic is 'Restorative care for the older patient'.

Metropolitan Branch, IDA – Scientific Meeting

January 17 Hilton Hotel, Charlemont Place, Dublin 2
Speakers are Dr David Ryan ('Pet hates and pitfalls') and Dr Rachel Doody ('Aesthetic considerations in periodontics and implant dentistry').

Irish Endodontic Society – Annual General Meeting: 'Pulping the Pulp: Do We Need To?'

January 24-25 Davenport Hotel, Dublin
Speakers include Dr Dermot Canavan, Professor Anthony Smith, Dr Laws Bjorndal, Dr David Ricketts, Dr Asgeir Sigurdson, Dr Preben Horsted Bindsley, Dr Mohammed Nekoofar and Dr Pat Cleary.
For registration and further enquiries please contact: Secretary, Irish Endodontic Society, 116 Merrion Rd, Ballsbridge, Dublin 4, Tel: 01 2692442, Fax: 01 2604808, or Email: paul@paulmccabe.ie.

Irish Endodontic Society – ASM Hands-on Course: 'Bigger, Brighter and Spinning Faster'

January 26 Skills Laboratory, Dental Hospital, Trinity College, Dublin
The course will be led by Professor Paul Dummer and a team of specialists who are world-renowned experts in rotary NiTi instrumentation, with vast experience in giving postgraduate courses. Places on the course will be limited to 20 participants.
For registration and further enquiries please contact: Secretary, Irish Endodontic Society, 116 Merrion Rd, Ballsbridge, Dublin 4, Ireland, Tel: 01 2692442, Fax: 01 2604808, or Email: paul@paulmccabe.ie.

February 2008

Munster Branch, IDA – Scientific Meeting

February 5 Clarion Hotel & Suites (formerly Ryan's), Ennis Road, Limerick
Meeting will commence at 7.45pm. Speaker is Mr Lloyd Searson and the topic is 'Dental implants in general practice'.

British Dental Association – 'Dentistry in the UK'

February 7 British Dental Association offices, London
This brand new event is primarily aimed at European Union dentists who would like more information on working in the UK. 'Dentistry in the UK' will cover dentists' regulatory obligations, and the regulations regarding health and safety, infection control, radiation protection and CPD, as well as information on how to avoid common pitfalls.
For more information, please contact the events team at events@bda.org or visit the BDA events website – www.bda.org/events.

Metropolitan Branch, IDA – Non Dental Evening

February 21 Hilton Hotel, Charlemont Place, Dublin 2
Guest speaker will be Senator David Norris. Commences at 8.00pm.
Retired dentists' dinner at 6.00pm in the Hilton Hotel.

Metropolitan Branch, IDA – Annual Scientific Meeting

February 22 Hilton Hotel, Charlemont Place, Dublin 2
Includes short presentations, a multidisciplinary dental team presentation, table discussions and trade show.

Irish Endodontic Society – Case Discussion

February 28 Dublin Dental Hospital, 7.30pm.

March 2008

13th South China International Dental Equipment and Technology Expo and Conference 2008

March 8-11 China Import and Export Fair,
Pazhou Complex, Guangzhou, China
For further information on this event please contact
www.dentalsouthchina.com.

Munster Branch, IDA – Scientific Meeting

March 11 Clarion Hotel & Suites (formerly Ryan's), Ennis Road, Limerick
Meeting will commence at 7.45pm. Speaker is Professor Chris Wright and the topic is 'Use of I/V sedation, RA sedation/oral sedation in general practice'.

Metropolitan Branch, IDA – AGM and Dental Quiz Evening

March 13 Hilton Hotel, Charlemont Place, Dublin 2
Further details will follow when available.

April 2008

Irish Endodontic Society Meeting

April 3 Dublin Dental Hospital, 7.30pm

Metropolitan Branch, IDA – Golf Outing

April 6 Woodenbridge Golf Club

IDA Annual Conference 2008 – Operation Wexford

April 23-26 White's Hotel, Wexford
For further information contact Elaine Hughes, Tel: 01 2950072.

May 2008

Annual Scientific Meeting of the Irish Society of Dentistry for Children (ISDC) 2008

May 9 Rochestown Park Hotel, Cork
The topic is early childhood caries and speakers include Professor Svante Twetman, Denmark. For further information Email: crowleyevelyn@eircom.net.

IDA – Lyttle Cup Golf Outing

May 16 Royal County Down Golf Club

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Irish dentist seeking an associate position within the Cork/Dublin area to start immediately. Will consider locum work. Tel: 086 8846323 or Email: mulhaire@hotmail.co.uk.

Experienced Irish dentist seeking locum work from mid-September to February in Dublin and the surrounding areas or the West of Ireland. Please Tel: 087 2774592, or Email: bfbdstinet.ie.

A reliable Polish dentist is seeking a full-time position in Dublin or surrounding areas. DC registered. Five years experience. IELTS 7.5. Tel: 0048 607 285858 (mobile), or CV on Email: selmaa@op.pl.

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Experienced Irish dentist available for part-time work in Cork City or County. GMS, PRSI and Dental Council registered. Tel: 086 3753158.

Experienced Irish dentist available for locum work in the greater Dublin area from now until July 2008. Will consider other locations. Please Tel: 086 3645861, or Email: annabeattie@gmail.com.

Experienced Irish graduate returning from UK is seeking associate/locum position in South Dublin/Wicklow area. Start January 2008. Please Tel: 0044 7804683276, or Email: dentist01@hotmail.co.uk.

Dental hygienist available for sessions in the areas of Cork, Kerry or Limerick. Six years experience. Tel: 087 7614516.

Specialist prosthodontist M.Dent.Ch., Dublin trained, seeks associate sessions in specialist or general practice in Dublin City or County. Flexible working hours, including weekends. Tel: 086 815 2206 after 5.00pm.

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Associate wanted for practice in Kerry. Please contact 087 9831290.

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Experienced dental associate required for a very busy, modern dental practice in Galway City. Fully equipped and computerised (digital x-ray, OPG, hygienist, etc.). Please Tel: 087 8034514 anytime, or Email: lisatuohy2006@yahoo.ie.

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- Full-time associate required for Dublin 14 three-surgery practice. Minimum three years experience and a keen interest. Email: drdjd@eircom.net.
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- Part-time associate required for state-of-the-art Dublin 4 dental clinic. Please Tel: 086 3319950.
- Full-time temporary general dental surgeon required, HSE Dublin South East, from September 2007. Applicants must have a minimum of one year's post qualification experience and full registration with the Irish Dental Council. For further details Email: grainne.dumbleton@mailc.hse.ie.
- Experienced full-time/part-time temporary general dental surgeons required by the HSE, South County Dublin and Bray, to provide dental services to children and special needs patients. Full registration with Irish Dental Council necessary. Please Email: catriona.roe@maild.hse.ie for further details.
- Full-time position available immediately in health board (Dublin West area). Tel: 01 6754954, or Email: nick.armstrong@maild.hse.ie.
- Health Services Executive Dental Section has a vacancy for a general dental surgeon in the Kildare/West Wicklow Local Health Office. Contact Dr Siobhan Doherty, Email: Siobhan.doherty1@mailm.hse.ie.
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- Locum dentist required for busy mid west Clare practice. December 1, 2007 to mid February 2008. Contact Mary, Practice Manager, Tel: 065 6828227.
- Locum dentist required for maternity leave, Co. Kildare. 25 minutes from Dublin. Start Dec/Jan. Full-/part-time. Telephone: 087 2432806, or Email: lccquinn@eircom.net.
- Locum dentist required for busy, modern Killaloe practice. December 1, 2007 to April 2008. Full-time with view to part-time position post locum. Please Tel: 087 2671879, or Email CV to brendaodowd@eircom.net.
- Dental surgeon required, full-/part-time, for South West Dublin practice. Telephone Pauline on 087 6889394 for interview.
- Dental surgeon required for very busy Midland practice. Good mix of private, PRSI and GMS patients. Friendly support staff. Tel: 086 8536342 after 8.00pm for details.
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- Associate orthodontist wanted for Dublin City Centre specialist private practice. Digital OPG & Ceph, OrthoTrac. Full-time or part-time considered. Email: braces@eircom.net.
- Orthodontist required for progressive orthodontic practice 50 minutes from Dublin, part-time or full-time. Email: kortho@oceanfree.net.
- Associate orthodontist required for modern, computerised practice in Castlebar, Co. Mayo. Tel: 087 2274156 or Email: mpkeenan@gofree.indigo.ie.
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- Full-time dental nurse required for Dublin 2 practice. Tel: 01 6787322 or 087 2322384 after 6.00pm.
- Experienced nurse, full-time, to assist paediatric dentist, Mount Merrion. Well-organised, motivated, friendly team. Email: margaretmcd1@eircom.net.
- Dental nurse required immediately. Full-time position. Three dentist-two hygienist practice, Naas, Co. Kildare. Tel: 087 9471088, or Email: martinflynn87@hotmail.com.
- Dental nurse required for modern, air-conditioned Westside surgery. Full- or part-time. Experience an advantage. Tel: 01 6102222, or Email: poboyleriverside@hotmail.com.
- Full-time/part-time dental nurse required, Northside dental practice. Some experience necessary. Tel: 087 9348007, or Email eimear2t@yahoo.com.
- Dental nurse, full- or part-time, required for Lower Baggot Street practice mid October. Tel: 086 8283272 or 6766760, or Email: paddygowen@mac.com.

CLASSIFIED

Dental nurse required for Dublin 4 practice. Please Tel: 086 3319950.

Dental surgery assistant/dental nurse required in the Stillorgan/Blackrock area of Co. Dublin. Experience desirable, but training offered to suitable applicant. Four-and-a-half-day week. Attractive salary offered related to experience. Email: whdavis@eircom.net.

Part-time receptionist to join friendly, motivated and well organised team. Excellent people skills, computer-literate and outgoing person to join our team. Email: margaretmcd1@eircom.net.

Rewarding opportunity for practice receptionist with dental nursing experience to join friendly team in Dublin 2. Full-time, non-smoker. Fluent English essential. Email: info@fitzwilliamdental.com.

Dental assistant/receptionist position available, part-time/full-time, brand new practice, friendly staff, no experience necessary. Please Tel: 01 2946444 or 086 8355140, or Email info@blackglendental.ie.

Full-time receptionist required for modern expanding practice. Experience preferable. Fluent English essential. Tel: 01 4506373, or Email CV to walkinstowndc@eircom.net.

PRACTICES FOR SALE/TO LET

Room available to rent in newly built, computerised medical facility in small West of Ireland town. Would suit dentist full-time/part-time. Rent reasonable. Tel: 087 2551111.

Practice for sale. Established 30 years, Carndonagh, Co. Donegal. Only 20 minutes from Derry City. Lovely place. Great potential. A lot of private work. Contact Breffni Cully on 087 9098008.

Five consulting rooms for lease, sharing with successful physiotherapy practice. Modern, purpose-built Galway City medical centre. Great opportunity for medical/allied medical practitioners. Details: 091 589696.

Dental surgery to let, Mullingar Town, ground floor, Main Street, 900sqft. Option on further 900sqft. 20 months double tax incentive. Tel: Brendan 086 8264809.

For sale, Newry. Top class, flexible leasehold. Two surgeries. Well equipped. Potential to expand – five surgeries. Booked three months, excellent staff/location. Tel: 086 8075273.

For sale. Long-established single-handed dental practice and house for sale, South Dublin, with pp for extension to three surgeries. Excellent location beside three schools and health centre. Ideal for GP with options to expand or orthodontist. Tel: 087 6713485.

Two-man Dublin dental surgery for sale. Tel: 087 9075573.

For sale, Kilkenny. Superb opportunity. Leasehold – 1,000sq ft. Great high visibility location. Modern 'walk-in-able', fully serviced dental suite. Three good sized bright surgeries. Large population. Only dental surgery in area. Five medical GPs. Reasonable rent. Immediate occupancy/most suitable candidate. Tel: 086 8075273.

For sale, Cork City. Top-class, very busy. Single-handed. Two surgeries. Superb location. Good equipment. OPG, hygienist. Reasonable rent. Expansion possible. Excellent figures. Realistic price. Tel: 087 2327557.

For sale, South Dublin. Superb modern dental facility in healthcare complex. Full planning permission. Large existing database. Website. 1,200sq ft. serviced area. Excellent, high visibility location. Low rent. Suitable for dynamic experienced practitioner for high spec dentistry. Tel: 086 8075273.

For sale, North Dublin. Excellent, long-established practice. Top class suburb, M50 10-minute journey. Practice still growing. Plans available to expand – two to three surgeries. Low rent. Flexible options. Almost nil medical card. Dentist retiring, fantastic potential. Realistic price. Tel: 086 8075273.

For sale, Co. Meath. Great location. Very busy high street practice. Airport 25 minutes. Visiting specialist. Ample room to expand. Low rent. Medical card very low. Excellent figures. Tel: 086 8075273.

For sale, North East. Excellent one-person practice – two surgeries. Large area space. Property – flexible options. Good growth potential. Principal can assist transition. Realistic price. Tel: 086 8075273.

For sale, Sligo. Top class location, busy footfall. Major retail complexes close by, ample parking. Single surgery, room to expand. Very low rent. Medical card low. Good growth potential. Excellent profit margins. Dentist retiring. Property – flexible options. Tel: 086 807 5273.

For sale, Co. Galway. Two-surgery. Well established. Idyllic set-up. Great equipment. Huge growth. Expansion needed. Booked three months ahead. Hygienist. Competitively priced. High profits. Tel: 086 8075273.

For sale, Dublin South. Superb location. Centre – two miles. Single-handed. Plans for expansion. Modern equipment. No MC. Almost fully private. Leasehold. Superb growth. Excellent profits. Tel: 086 8075273.

For sale, South Dublin. City Centre – four miles. Superb, well established, very busy, high profile practice. Two surgeries. Huge growth. Freehold option. Large area space – 2,500sq ft. Healthcare/dental usage. Excellent figures. Thriving practice. Principals relocating outside Dublin. Tel: 086 8075273.

For sale, Dublin City Centre. City Centre one mile. Excellent location. Area wide open – 1,000sq ft. Huge growth potential. Major development immediate vicinity. Long-established, very busy general practice. Two surgeries. Excellent figures/profits. Tel: 086 8075273.

PRACTICES WANTED

Dental practice wanted. Experienced Irish dentist returning from UK looking for practice in Munster area. Freehold or leasehold. Confidentiality assured. Would consider associate position with a view. Contact number 0044 7775915437, or Email: dentalpracticewanted@hotmail.com.

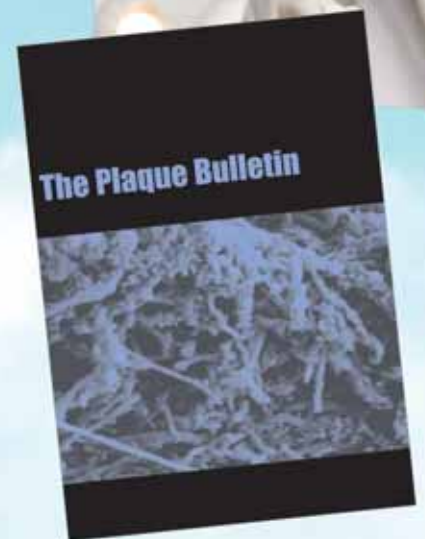
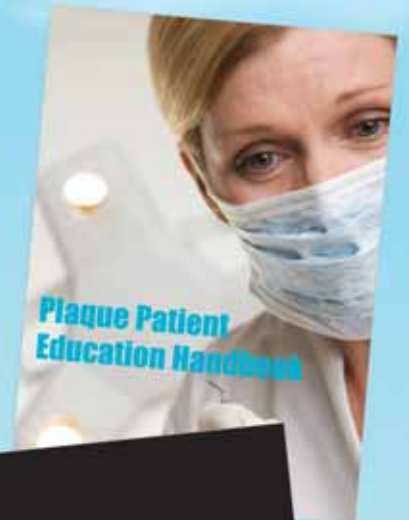
EQUIPMENT FOR SALE

OPG for sale – instrumentarium OP100, five years old, excellent machine, regularly maintained. Also, Durr Dental Developer for sale. XR 24, fully automated with replenisher. RU 24, five years old. Tel: 01 2986029 between 9.00am and 5.00pm.

Kavo Healozone machine for sale. Four years old. €7,500. Contact Der on 087 2941421, or Email: derdental@eircom.net.

Dental equipment. 'Adec Performer' eight years old. p.w.o. Suit second surgery or starting up. Can be seen working until end October. Tel: 087 2361646, or 087 2056456.

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Introducing the new improved Wrigley Oral Healthcare Programme from Orbit Complete. Specially designed for oral health professionals, it offers a complete range of free information, including CPD compliant professional publications on plaque, edited by well known names in the dental industry, plus patient leaflets, samples of Orbit Complete, online factsheets for you and your patients and a newly refreshed website.

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designed to:

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- provide beautiful, longlasting soft tissue esthetics
- increase surface area on which soft tissue can grow