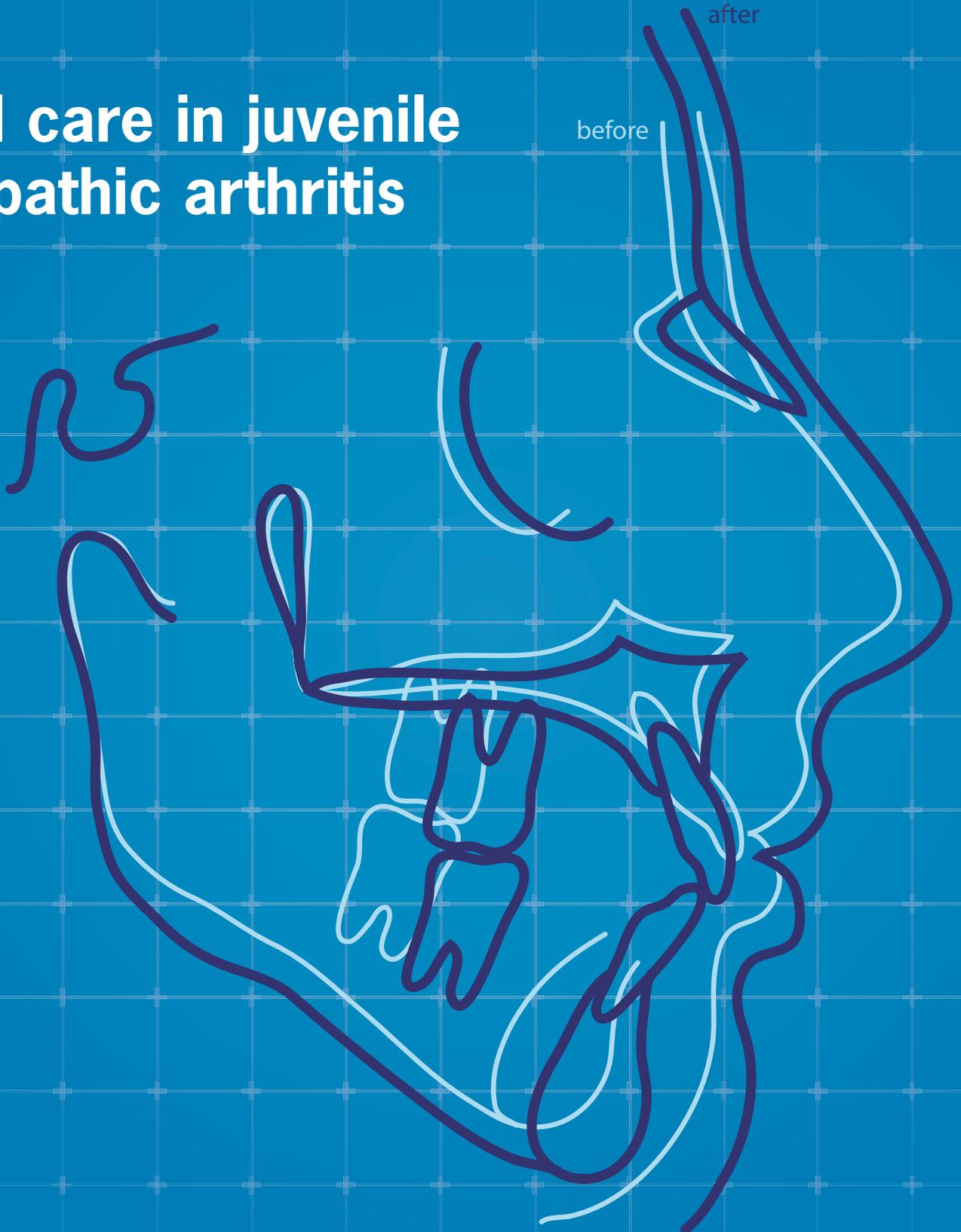


Journal of the Irish Dental Association

Iris Cumainn Déadach na hÉireann

Oral care in juvenile idiopathic arthritis



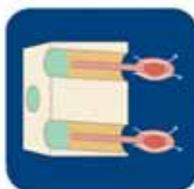
SENSODYNE

1 in 3

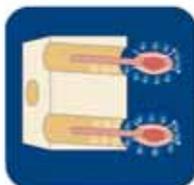
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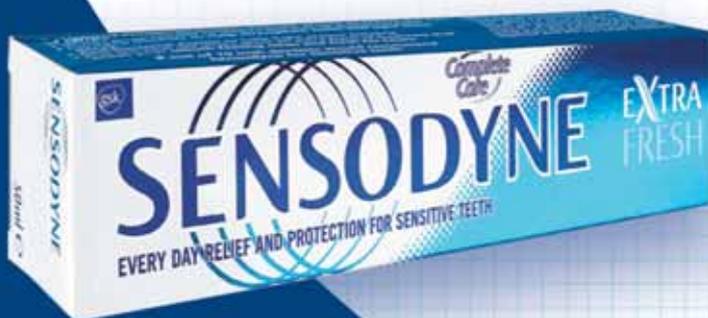
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1. Independent Market Research May 2003.
2. Gilam DG et al. J Periodontol 1992; 63: 7-12.
3. Silverman et al. Am J Dent. 1994;7:9-12.
4. Salvato et al. Am J Dent. 1992; 5:303-306.
5. Orchardson, R. Strategies for the management of dentine hypersensitivity; 27:315-323; Toothwear and sensitivity, Martin Dunitz 2000.
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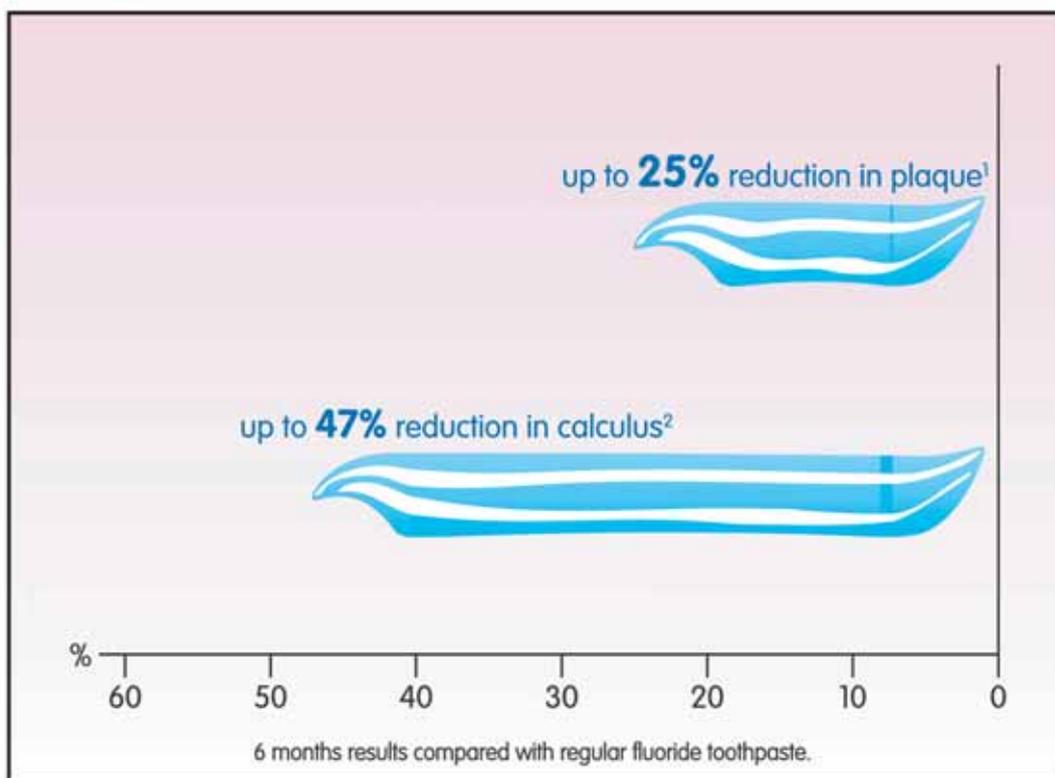
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40

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Is the oral health strategy a cause for hope?

Welcome to 2008 and the first of our planned six issues of the Journal. Where will the Editorial Board find the time to do the work, I ask myself? Politically, there is an important development, with a new Oral Health Strategy. The group, set up by the Minister of Health and Children, is looking at oral health and will hopefully recognise and deliver a strategy for the next five years, progressing the dental/oral needs of the country as a whole, taking demographic and altering disease predictions into consideration. Consultant contracts have been discussed and it appears, after protracted discussions, that an agreement is in sight. This may lead to the long-awaited filling of posts and provision of an improved hospital service. The Government is keen to develop a strong research basis in Ireland, has promised significant funding, and the Journal will do what it can to help nurture this area.

Wexford looms

The Scientific Meeting for 2008 will be held in White's Hotel, Wexford on April 23–26 under the Presidency of Dr Ena Brennan and even though it is a long time since I was a dental student, I can remember a great time there and I look forward to seeing you all there.

Bisphosphonates and budding scientists

Again, the Journal advises dentists to actively manage our dental patients on bisphosphonates. This is a serious concern and Dr Kearns (P10) highlights a study in his hospital looking at the problem. Readers should review the JIDA paper 'Warning; bisphosphonates and osteonecrosis of the jaws' (JIDA 2006; 52 (2): 79).

Our budding young scientists are to be congratulated (P10) on two dental projects presented at the Young Scientist Exhibition. Our future is in safe hands with this type of initiative.

News, Europe and creating smiles

Is there a place for dental complaints (P14) to be resolved by an independent Dental Complaints Service funded by the Dental Council? Is amalgam (P19) under pressure again? There is a fascinating section in European News on the profile of the dentist (P20) of the future and it is hoped that the oral strategy group read this.

Dr Donal Tully, Dr Padraig Creedon and Dr Johnny Fearon deserve special praise for our feature article – 'Creating smiles', P22 – 23. This type of work is very satisfying and worthwhile. It is hoped that some colleagues will avail of the opportunity to help.

Science and radiation safety

The scientific section highlights how we can manage the patient with a congenital bleeding disorder (P24) and gives us a plan to deal with these patients in practice (Table 1). Juvenile idiopathic arthritis is an important disease, often presenting with significant dental oro-facial problems. This paper highlights the problems, the medications these patients are taking and, more importantly, how a case might be well managed (P29).

Radiation safety of the patient by John Upton (P40) in our practice management section is a must for all practitioners and nurses. It is well written, easy to follow and will hopefully keep us compliant with the law!

Our thanks

Thanks to all those referees who have worked so hard last year, and we hope that we can rely on you for this year. 2007 was a very good year for the Journal with good copy, great circulation and enthusiastic feedback. We must say goodbye to a few people: Ciara Murphy CEO IDA, who has done an excellent job for the Journal and has gone on to greater things, Dr Niall Jennings, our practice management advisor and Dr David Clarke. All three have contributed greatly and made the Journal better for their contribution. We welcome Dr Aislinn Machesney and Dr Stephen McDermott to our Editorial Board.



Leo F. A. Stassen

Prof. Leo F. A. Stassen

Honorary Editor

PRESIDENTIAL NEWS

Progress in dentistry issues in 2008?

CEO resignation

It was with regret that I accepted the resignation of our CEO, Ms Ciara Murphy, in November. Ciara has served our Association admirably over the past seven years and her significant contribution will be evident for years to come. I would like to wish Ciara every success in her new post.

Minister announces pricing body

In line with IDA expectations, Minister Mary Harney has announced her intention to consider the establishment of an independent pricing body to recommend on fee scales for self-employed persons who are contracted by the state to provide services (e.g., dentists, doctors and pharmacists). The Minister has said that she hopes such a body will be established to overcome restrictions on fee negotiations imposed by the Competition Act, and that it might be similar to the Review Body on Higher Remuneration in the public sector. The IDA has written to the Department of Health and Children seeking confirmation that it will be consulted on the establishment of such a body.

National Oral Health Strategy submission

As reported in the last issue of the Journal, the IDA is participating in the consultative panel on the recently launched National Oral Health Strategy. Progress in this regard has included a request from the Department of Health and Children for submissions on the scope and content of the Strategy, due by February 1, 2008. Work on the IDA's submission is currently underway.

Annual Conference 2008

Following on from last year's successful annual conference in Cork, this year's event will take place in White's Hotel, Wexford from Wednesday, April 23, to Saturday, April 26, and will, for the first time, incorporate our Annual General Meeting. Members should all have received the AC 2008 guide outlining the many fantastic science and social events planned, and a more detailed brochure will follow in the

coming weeks. Many of the pre-conference courses are booking up fast so be sure to contact IDA House as soon as possible to secure your place! I encourage everybody to attend what promises to be a most educational and entertaining conference.

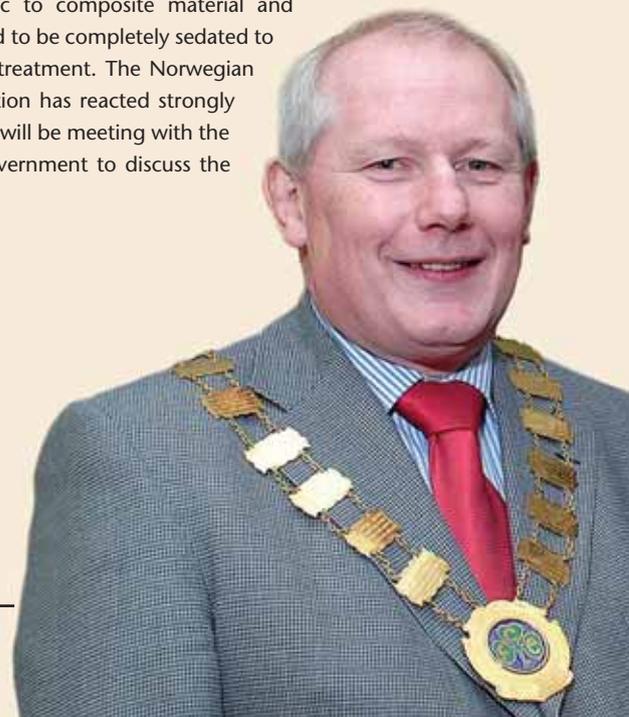
Council of European Dentists

I am pleased to announce that Dr Tom Feeney was elected Honorary Treasurer of the Council of European Dentists on November 30, 2007. Dr Feeney is an excellent representative of the IDA in Europe and we congratulate him on his appointment to this position.

Amalgam ban in Norway

I have learned from our colleagues in the Norwegian Dental Association that Norway has banned the use of dental amalgam as of January 1, 2008. The ban is part of a government effort to restrict the use of mercury and was carried out largely for environmental reasons. There are a few minor exceptions to the ban, i.e., patients allergic to composite material and those who need to be completely sedated to receive dental treatment. The Norwegian Dental Association has reacted strongly to the ban and will be meeting with the Norwegian Government to discuss the matter.

John Barry
President





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AGM takes place at Conference



White's Hotel, Wexford – venue for the IDA Conference.

The IDA Annual Conference for 2008 is fast approaching. The event takes place from April 23-26 next at White's Hotel, Wexford, and will include a host of international and national speakers along with an extensive trade show.

2008 is a unique year in the history of the IDA, with the first woman President, Dr Ena Brennan, taking over the role from Dr John Barry. It is also the first time that our AGM will be incorporated into the three-and-half-day event; it will take place on Thursday April 24 at 10.00am. All members are encouraged to attend.

The conference kicks off on Wednesday April 23 with four pre-conference courses covering the areas of implants, composites, practice management and digital photography.

Topics included in the extensive programme will include: sports dentistry; prevention and treatment; erosion; bleaching; stress management in the dental practice; employment law; and, cross infection control, along with much, much more.

All the usual social activities will take place, including the Annual President's Dinner on Friday April 25 and the President's Prize Golf Competition at the fantastic Rosslare Golf Club.

Book before February 21 to avail of the early booking fees!

For further information look at www.dentist.ie or contact IDA House on 01 295 0072.

Advice on risk associated with bisphosphonates

The Irish Dental Association has advised patients being treated with bisphosphonate drugs of a potential serious complication associated with their use.

Many patients in Ireland are treated with bisphosphonates for a variety of medical conditions including osteoporosis, multiple myeloma and bone metastasis in cancer.

The condition that may develop as a result of bisphosphonate use is known as bisphosphonate-related osteonecrosis of the jaw (BRONJ). BRONJ presents with areas of exposed and non-healing bone in the jaw. It is a painful and debilitating condition with no specific curative treatment available at present; therefore, dentists are advising that prevention of the condition is vitally important.

Bisphosphonates provide significant benefits for patients. However, dentists advise that BRONJ may develop spontaneously or can be linked to surgical procedures carried out on the jaws, including tooth extraction, periodontal surgery or implant placement.

Mr Gerard Kearns, Consultant Oral and Maxillofacial Surgeon, and Dr Okechukwu, Specialist Registrar in Oral Surgery, at the Mid Western

Regional Hospital, together with their colleagues in the Departments of Geriatric Medicine, Haematology and Oncology, have reviewed 79 patients treated with bisphosphonates at the hospital.

Results to date from the ongoing study show that 52 patients were treated with oral bisphosphonates for osteoporosis and 27 were treated with intravenous bisphosphonates for metastatic bone disease or multiple myeloma. No patients on oral bisphosphonates in the study developed BRONJ. However, 18% (5 out of 27) of patients treated with intravenous bisphosphonates developed BRONJ during a mean two-year period of treatment. Four of these patients developed the condition following tooth extraction and one patient had spontaneous BRONJ.

Mr Gerard Kearns said: "Treatment of BRONJ is symptomatic, with emphasis on oral hygiene, mouth rinsing and the use of antibiotics in the presence of infection. It has proven difficult to completely cure this condition and efforts must be directed towards prevention in patients at risk. It is strongly recommended that all patients should have a complete dental examination and any necessary treatment carried out prior to commencement of bisphosphonate therapy."

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IDA NEWS

QUIZ

Submitted by Dr Mary Clarke, Oral Surgeon Lecturer in Conscious/ Sedation, Dublin Dental School and Hospital.

A 48-year-old man is referred to the Department of Oral and Maxillofacial Surgery regarding mild swelling and pain associated with the lower anterior central incisors. All teeth are vital.



Questions

1. Describe what you see on the radiograph.
2. What is the diagnosis? What is the treatment, and what are the risks associated with treatment?
3. Is long-term follow-up necessary?

Answers on page 16

Dental projects at the Young Scientist Exhibition

Aidan Doran, a first-year student in Kinsale Community College, found that around half of the bacteria that exist in a toothbrush can be killed using a UV sanitiser. Ultra violet rays can kill bacteria and sanitisers use concentrated UV rays to kill bacteria on toothbrushes.



Caoimhe Brennan, Sarah Crowe and Amy Nolan from The Convent of Mercy Secondary School, Roscommon Town, Roscommon are in fourth year. They conducted quite a sophisticated experiment with the assistance of the Dublin Dental School and Hospital. Essentially, they established that the use of whitening products (both hydrogen peroxide and carbamide peroxide, both in various concentrations) "can cause significant damage to the surface enamel of teeth and the longer they are used for, the greater the damage".



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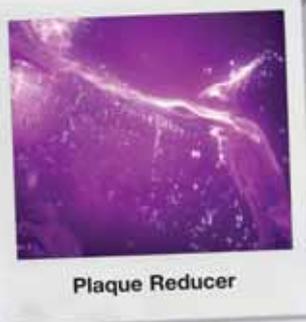
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LISTERINE

IDA NEWS

Metropolitans stage ASM



Senator David Norris addresses members of the Metropolitan branch on February 21.

The Metropolitan Branch will hold its Annual Scientific Meeting in the Hilton Hotel, Charlemont Place on Friday February 22 next. The event will also include a full trade show. Speakers at the event will include Dr Christine McCreary who will present on 'Medications that matter'. Donal Blackwell will present on 'Creating the right impressions' and Drs Mark Kelly and Karl Cassidy will present on 'Practice design concepts'. The

usual table discussions will also take place on endodontics, orthodontics, facial pain and restoration. For further information and a brochure, please contact IDA House: info@irishdentalassoc.ie.

For those of you who are interested, a non-dental lecture will be given by the entertaining Senator David Norris on the previous night, Thursday February 21, at the Hilton Hotel, Charlemont Place at 8.00pm. All are welcome.

Kilkenny venue for South Eastern Branch

The annual meeting for the South Eastern Branch will take place on Friday March 7. This year the event is moving from Faithlegg House Hotel, Waterford, to the Kilkenny Court Hotel.

A fantastic line-up of topics and speakers has been organised to include:

- Dentine bonding and adhesive dentistry
Prof Callum Youngson
- Practical tips in endodontics
Dr Naomi Richardson
- When to refer in periodontology
Dr Rory O'Neill
- Getting the most out of your laboratory
Glenn McEvoy
- The future of dentistry
Prof Brian O'Connell

A full trade show of more than 20 companies will also be present on the day. The event will conclude with the Annual Gala Dinner that evening, to which all members and guests are invited.

For further information contact IDA House: info@irishdentalassoc.ie.



Orofacial regulation therapy

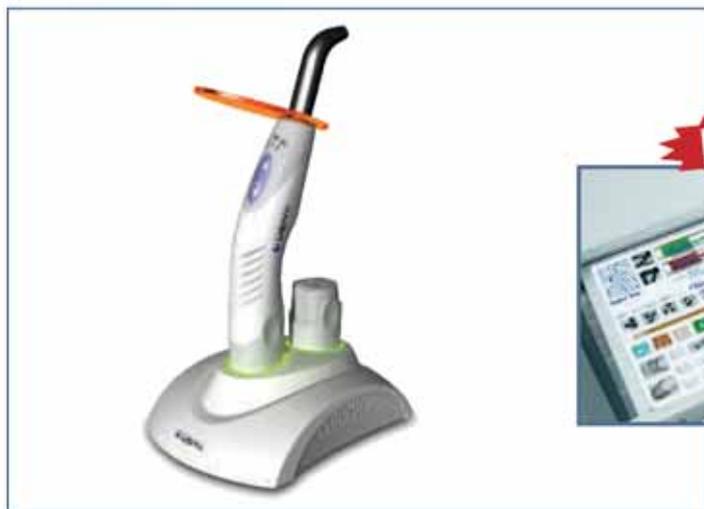
The Orofacial Regulation Therapy Seminar 2008, which takes place on April 14 and 15 at the Dublin Dental School and Hospital, will bring to professionals in dental, speech and oral myofunctional therapy the most up-to-date information in the field of orofacial regulation therapy (ORT). The seminar includes lectures and therapy suggestions from experts in their field from all over Europe. Lectures will range from practical advice on how to make and maintain removable appliances to an overview on facial oral tract therapy (FOTT), which is an interdisciplinary holistic approach focusing on optimising posture, movement and physical handling techniques in the assessment and treatment of people with difficulties in saliva management, eating, drinking, breathing, voice and speech. This seminar will also provide

the unique opportunity for a limited number of participants to take part in a half-day, hands-on course in orofacial assessment and regulation therapy using the paediatric oral skills package (POSP), facial-oral tract therapy (FOTT), and the designing of removable ORT appliances. No previous experience is required but participants must have attended the seminar on the previous day. All participants on the half-day, hands-on course will have the chance to attend the various workshops on a rotation basis.

Places are limited and will be allocated on a first come, first served basis. The full two-day course will be eligible for a total of eight hours verifiable CPD and the one-day seminar alone will be eligible for five hours. For full programme and venue details please visit www.dentalscience.tcd.ie.

The closing date for booking is March 31, 2008.

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BUSINESS NEWS

UK service for dental complaints

A new service to help resolve complaints about private dental care in the UK has succeeded in resolving the majority of complaints received within three working days. The Dental Complaints Service has been set up and funded by the UK's Dental Council, but it operates independently. Its first annual report was published in December and it also identified that the least amount of complaints for any part of the UK came from Northern Ireland.

The service, which helps resolve complaints about private dental care, logged more than 1,500 complaints in its first year of operation, according to the report, the front cover of which bears the Service's straight-talking motto, "helping you to put things right".

"Speed is crucial. All the evidence shows that the longer a complaint takes to resolve, the less likely it is to be resolved to the mutual satisfaction of the parties involved, who tend to become more and more entrenched," says Derek Prentice, who chairs the Service.

More than half of the 1,559 complaints logged and closed by the Service in its first year were resolved over the phone, often by urging the patient and dental professional to talk.

One in six callers contacted the Service at the suggestion of a dental professional. The South East, London and the South West yielded most complaints per head of population; Scotland, the North East and – by far – Northern Ireland yielded least.

The success of the Service is also due to the very positive response it has received from dental professionals, who have praised it for its even-handedness. Many dental professionals have called it for advice generally, and some about apparently intractable complaints.

Of the 1,500-plus complainants, over three-quarters were initially referred back to their dental practice's own complaints procedures. Of those, fewer than one in five returned to the Dental Complaints Service with their complaint unresolved.

If a practice cannot resolve the complaint, then the Dental Complaints Service's advisers offer to help to sort it out informally with the patient and their dental professional. In 16 cases, complaints were referred further, to meetings facilitated by a panel of trained volunteers, the last step in the service's attempts to resolve a complaint. Five of the 16 panels concluded that there was no complaint to answer.

Across the UK, most complaints have been about dentists, with a few about other dental professionals. Most complaints concerned solely private treatment, but a few were about mixed NHS/private treatment. Treatment issues included fillings, crowns and dentures, and service issues have included pain, cost and rudeness.

Most of the dental professionals who provided feedback rated the Service's performance as "excellent" or "good". Four out of five complainants offering feedback rated quality of service in the same way.

Star hygienist



Leonora Moran receiving the Sensodyne award from Patrick Reidy of GlaxoSmithKline.

The Sensodyne award for the dental hygiene graduate with the highest exam marks in UCC was presented recently. Winner Leonora Moran received her prize from Patrick Reidy of GlaxoSmithKline, makers of Sensodyne, at the University Dental School and Hospital Prizegiving Ceremony for 2007 in December. Dr Finbar Allen, Head of the School and Hospital, expressed his thanks to GSK for sponsoring the award.

New brace on market

According to *The Daily Mail*, some dental practitioners are claiming a brace whose working parts remain largely out of sight is about to revolutionise cosmetic dentistry. The Inman Aligner claims to straighten teeth in just a month, and at a fraction of the cost of traditional treatment.

The aligner can only be fitted to teeth which are full-formed and, as such, is not suitable for children. It is also limited to mild or moderate realignment treatment.

Dr Tim Bradstock-Smith, of the British Academy of Cosmetic Dentistry, said: "It is ideal because the brace can be removed for job interviews, family photos or any type of special occasion."

Created by Florida dental technician Don Inman, the aligner is similar to a gumshield, except that the acrylic casing that covers the teeth is transparent and hardly seen.

Patients may find they need to take mild painkillers for the first week or so and may develop a temporary lisp. The makers also caution that the aligner may cause the wearer to salivate more than usual in the first 48 hours.



TAME YOUR PATIENTS' BEASTLY CRAVINGS

QUIT WITH



Product Information: NiQuitin, NiQuitin Clear 7mg/14mg/21mg Transdermal Patches.

Presentation: NiQuitin: Matt, pinkish-tan, square, transdermal patches. NiQuitin Clear: Transparent square transdermal patches. Both presentations are available in three strengths (sizes): NiQuitin, NiQuitin Clear Step 1 (containing 114mg nicotine per 22cm² patch), NiQuitin, NiQuitin Clear Step 2 (containing 78mg nicotine per 15cm² patch) NiQuitin, NiQuitin Clear Step 3 (containing 36mg nicotine per 7cm² patch), delivering 21mg, 14mg, 7mg nicotine respectively in 24 hours.

Indications: Relief of nicotine withdrawal symptoms, including cravings, associated with smoking cessation. If possible, use in conjunction with a behavioural support programme.

Dosage and Administration: Patch users must stop smoking completely. For a habit of more than 10 cigarettes a day, start with Step 1 for 6 weeks, then continue with Step 2 for 2 weeks and finish with Step 3 for 2 weeks. For a habit of 10 or less cigarettes a day, start with Step 2 for 6 weeks then finish with Step 3 for 2 weeks. For best results complete full course of treatment. Do not use for more than ten consecutive weeks. If patients still smoke or resume smoking they should seek doctors' advice before using a further course. Apply patch to clean, dry skin site once a day preferably soon after waking. Remove patch

after 24 hours and apply new patch to a fresh skin site. Patches may be removed before going to bed. However, 24 hour use is recommended for optimum effect against morning cravings. Wear only one patch at a time. When handling patch, avoid touching eyes or nose. Wash hands after use in water only.

Contraindications: Use by non-smokers, occasional smokers or children. NiQuitin should not be used in patients with recent myocardial infarction, unstable or worsening angina pectoris, Prinzmetal's angina, severe cardiac arrhythmias, or recent cerebrovascular accident. Hypersensitivity to the patch or ingredients.

Precautions: Use only on doctor's advice in adolescents 12-17 years, cardio-vascular disease (e.g stable angina pectoris, heart failure, cerebrovascular disease, vasospastic diseases, severe peripheral vascular disease), uncontrolled hypertension, severe renal or hepatic impairment, peptic ulcer, hyperthyroidism, Insulin-dependent diabetes, pheochromocytoma, atopic or eczematous dermatitis. Concomitant medication may need dose adjustment due to reduced nicotine levels, caffeine, theophylline, imipramine, penfazocine, phenacetin, phenylbutazone, insulin, tacine, clomipramine, adrenergic blockers may need dose decrease, adrenergic agonists may need dose increase. Patients should be warned not to smoke or use

other nicotine-containing patches or gums when using NiQuitin/NiQuitin Clear. Keep safely away from children.

Side effects: Transient rash, itching burning, tingling at site of application should resolve on removal of patch. Rarely, allergic skin reactions. Occasionally, tachycardia. Other systemic effects may relate either to using patches or smoking cessation, nausea, mild stomach upset, constipation, cough, sore throat, dry mouth, muscle/joint pain, headache, weakness, flu type symptoms, dizziness, sleep disturbance. Mild effects should resolve with continued use, if troublesome, Step 1 users can step down to Step 2 for remainder of initial 6 weeks, then use Step 3 for final 2 weeks.

Pregnancy and lactation incl. trying to become pregnant: Use only on advice of a doctor.

Legal category: Pharmacy only. **Product Authorisation number:** NiQuitin 21mg (Step1), 14mg (Step 2), 7mg (Step 3): 678/71/3, 678/71/2, 678/71/1; NiQuitin Clear 21mg (Step1), 14mg (Step 2), 7mg (Step 3): 678/71/9, 678/71/8, 678/71/7. **Product Authorisation holder:** GlaxoSmithKline Consumer Healthcare (Ireland) Ltd., Stonemasons Way, Rathfarnham, Dublin 16. For further information, please contact GlaxoSmithKline Consumer Healthcare (Ireland) Ltd., Stonemasons Way, Rathfarnham, Dublin 16. **Date of last revision:** December 2007.

BUSINESS NEWS

An alternative to traditional alginate

Until recently, alginate has been the only viable option for certain dental impressions. The fast setting times, mild flavours and low cost have long been attractive qualities of alginate but there are considerable downsides. These include poor dimensional stability, hazardous dust, messy, repetitive hand mixing, and above all, a lot of wasted time. According to the Kerr company, AlgiNot is an extremely cost-effective, reliable alginate alternative. It is a high-quality material that delivers exceptional accuracy and performance. Presented in self-mixing sausage cartridges AlgiNot is simple to use and saves the dental assistant time and energy – giving the practice the opportunity to accommodate more patients.

Biomet 3i Symposium

The BIOMET 3i Global Symposium 'Science and Technology Reshape Implant Dentistry' will be held from April 24 to 26 at the Hyatt Regency in Chicago. More than 30 internationally renowned speakers will present the latest technologies and techniques during the three-day event. Seven optional, full-day pre-symposium programmes on April 24 will be included. The general session on April 25 and 26 will feature more than 20 world-class clinicians, which will present the latest technologies and concepts in dental implant therapy focusing on bone preservation and aesthetics, and more.

New grafting courses in Jersey

Two new courses designed to provide experienced implantologists with a thorough understanding of advanced bone augmentation techniques will be held in Jersey in 2008. Presented by Dr Sharad Patel, the courses cover current concepts in hard and soft tissue grafting for accelerated implant reconstruction and are part of the Dentsply Friadent Skills Development Programme.

Conducted over two days at Leodis Dental Studio, both course programmes combine

in-depth lectures, a hands-on workshop and live surgical demonstration. Participants experience and practise different surgical techniques on animal mandibles. Upon completion of the course, participants should be able to understand the protocols for immediate versus delayed implant placement in the aesthetic zone, and predictable evidence-based extraction site management.

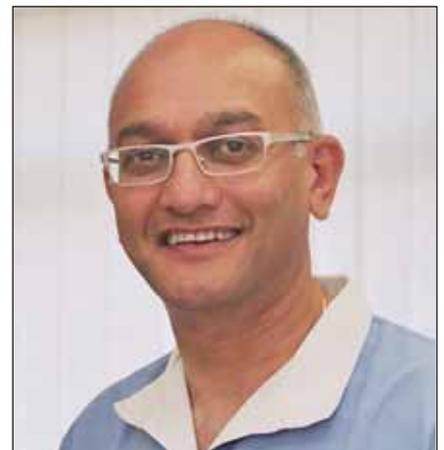
There are course dates in March, May, September and October.

Award offers students big opportunities

The Dental and Hygiene Student Award, organised by the Wrigley Oral Healthcare Programme from Orbit Complete, gives students the opportunity to win the euro equivalent of Stg£1,000 for themselves and the same for their school. It also offers students the opportunity to present their work to professionals in the dental industry.

This year's award is in association with the Irish Dental Hygienists' Association (IDHA) as well as the British Dental Association (BDA) and the British Society of Dental Hygiene and Therapy (BSDHT). The award challenges dental students, student hygienists and student dental therapists in the UK and Ireland, in any year of study, to produce an original A3 research poster on how preventive dentistry impacts on systemic health. Entries will be judged by relevant academics who will be looking for interesting interpretations of the theme and a solid, professional approach.

As well as the financial reward, the winner will have the opportunity to present their findings at a special seminar, hosted by the Wrigley Oral Healthcare Programme at the BDA Conference in May 2008. Visit www.BetterOralHealth.info/students to download an entry form, or contact Wrigley@ideaslondon.com. The closing date for receipt of entries is February 15, 2008.



Dr Sharad Patel.

QUIZ ANSWERS

← from page 10

1. There is uncircumscribed radiolucency with a mainly smooth outline, which is moderately defined. The lesion is associated with the lower incisors, and appears to have caused displacement but no resorption of the associated teeth.
2. The diagnosis is keratocystic odontogenic tumour. Enucleation of the cystic lining, which was sent for histopathology. Risks include increased mobility and loss of vitality of the associated teeth.
3. Yes, because of the possibility of re-occurrence.



Listerine launch Total Care



Listerine Total Care is the newest, and according to the company, the most powerful variant of the well-known mouthrinse. It is formulated to offer six benefits: reduce plaque; maintain healthy gingivae; strengthen teeth against decay; prevent calculus build-up and keep teeth naturally white; kill up to 99.9% of oral bacteria; and, keep breath fresh for up to 24 hours.

“For the majority of people, by making simple adjustments to their oral care routine, real improvement can be made in their oral health,” says Dr Paul O’Sullivan of the Listerine Advisory Board. “Studies demonstrate that using a

therapeutic mouthwash can provide a dramatic and significant improvement in the health of teeth and gums, and can increase the natural white element of teeth”.

The Listerine range of essential oil mouthwashes are the only mouthwashes to be accredited by the Irish Dental Association and are clinically proven (sources provided) to produce a reduction of up to 48% in recoverable plaque bacteria between the teeth and reduce the accumulation of plaque by up to 52% when compared to brushing and flossing alone.

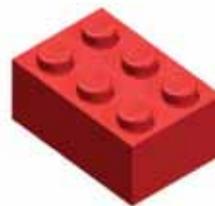
Dentanet thriving

Dentanet is a dental laboratory service that was set up three years ago in Ireland by Oguz August Dogrusoz. In that time, according to Oguz, the company has developed a reputation for high quality products. He says: “The compliments we get from dentists are great and really help to motivate our technicians. Since we introduced an optic read and laser cut for models, the precision on the work is fantastic. We have also started working with a CAD-CAM system, specialising in 3M-ESPE LAVA crowns and bridges.”

Dentanet has a 10 working days return policy and its current price list includes porcelain bonded crowns at €95; Empress II at €139; ESPE LAVA at €199; and, chrome cobalt casting at €129.

First for IDHA

The Irish Dental Hygienists Association (IDHA) is staging its inaugural scientific meeting in Cavan in October of this year. A two-day event over Friday 17 and Saturday 18, it is designed to cater for all members of the dental team. An accompanying persons programme will also be available and a gala dinner is planned for the Saturday night. While speakers and other details are currently being finalised, the full details will be available shortly on the IDHA website: www.irishdentalhygienists.com.



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Images courtesy of Dr Nigel Saynor



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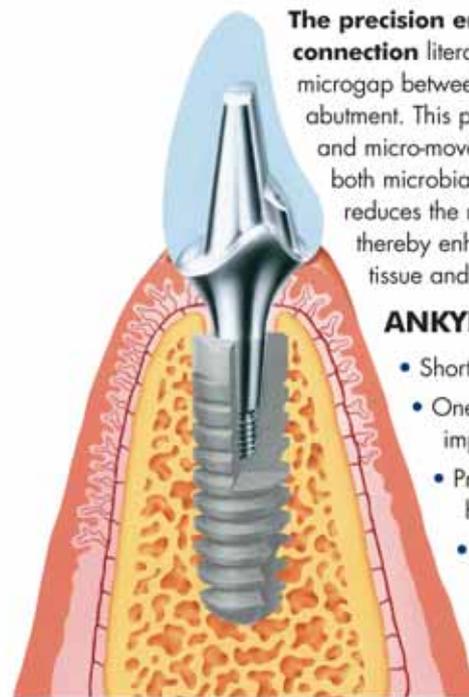
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Dr Phil Bennett
Lyme Bay Dentistry

"The system is very accurate to work with and offers an extensive range of abutments. With Ankylos it is easier for the dentist to achieve a precise impression, and abutments are always a positive fit".

Steve Taylor
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Amalgam bans in Scandinavia

DR TOM FEENEY, Honorary Treasurer of the Council of European Dentists, summarises recent events in Europe.



Hotel Chateau du Lac, Genval – venue for the meeting.

The November meeting of the Council of European Dentists (CED) was held at the Hotel Chateau du Lac in the picturesque town of Genval close to Brussels. Ireland was represented by Drs Tom Feeney, Barney Murphy and Robin Foyle. Ms Ciara Murphy opted not to attend in view of the fact that she would be leaving the Association in the near future. In the short time that Ciara was a member of the CED team she contributed a great deal, and her networking helped to keep a high Irish profile at European level.

Apart from discussion on the routine agenda items, the CED adopted a resolution on the profile of the future dentist and also adopted a revised ethical code for dentists in the European Union.

Amalgam banned in Scandinavian countries

The big news is that (almost total) bans on amalgam will be coming into force in Denmark, Sweden and Norway this year.

Denmark

The Danish Government decided in October/November to phase out dental amalgam so that, from now on, amalgam filling of molar teeth will only be allowed in permanent teeth where it is evident that an amalgam filling will last longer than a plastic filling, when there is:

- a lack of opportunity for making the teeth dry;
- a difficulty in accessing the cavity;
- a particularly large cavity; or,
- a large gap to the neighbouring teeth.

The necessary legislation has not been passed yet and the ban will not come into force until October 2008, according to the Dental Association's most recent information from the government (and not April 2008, as stated in a news release).

Norway

The Norwegian Ministry for the Environment issued a press release on December 21, without consulting the Dental Association, announcing



Dr Barney Murphy, Dr Tom Feeney and Dr Robin Foyle representing Ireland at the CED meeting.

a ban on amalgam with effect from January 1, 2008. There are a few minor exceptions to the ban – patients who have allergies towards composite materials, and patients who need to be completely sedated while receiving dental care.

Sweden

The Swedish government has announced that they are going to ban amalgam in the first part of 2008. Exceptions allowing the use of amalgam may be granted.

The stated position of the CED is as follows:

"It is preferable to maintain a variety of materials for the treatment of different dental decay situations. The worldwide consensus of the dental profession is that amalgam should remain part of the dentist's armoury in order to best meet the needs of patients. It is important that patients are not denied freedom of choice in respect of how to be treated.

Dental amalgam continues to be the most appropriate filling material for many restorations, due to its ease of use, durability and cost-effectiveness. Dentists are best placed to identify patients' oral health needs".

The CED working group will be working urgently to decide how best to respond to this news from Scandinavia.

Two EU scientific committees have just reported, reaffirming the safety of dental amalgam and its effectiveness as a restorative material. The Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) stated that, apart from allergic reactions, amalgam did not pose a risk to health. It pointed out that alternative materials might also give rise to allergic reactions. The Scientific Committee on Health and Environmental

Risks (SCHER) concluded that environmental risks and indirect exposure of humans to methylmercury were much lower than tolerable limits, but pointed out that insufficient data was available to compare the risks of amalgam and alternative materials.

EU NEWS

The Commission asked the scientific committees to produce the reports in February 2007, as a follow-up to the Community mercury strategy, which was published in 2005. There will now be a public consultation to give stakeholders an opportunity to state their agreement or otherwise with the opinion and to provide the committees with further information or data.

Health Services Directive postponed – update

The European Commission has postponed the publication of the new draft Directive on cross-border healthcare (patient mobility) until early this year. It is understood that there has been intense discussion between the 27 commissioners on whether the proposed law would go too far and undermine the financial stability of national health systems. The idea for this new Directive was born when health services were excluded from the general Services Directive (Dir 2006/123) after determined lobbying of the health professions last year. At that time, the Commission committed itself to bringing forward a specific initiative on health services. In preparation for this, the Commission launched a public consultation on a new EU framework for health services in late 2006, to which the CED made a submission.

The draft Directive was due to be published towards the end of November 2007, along with an explanatory communication and impact assessment. Officially, the delay was said to be caused by the crowded end-of-year Commission agenda. Unofficially, Commission President José Manuel Barroso is said to have ordered the delay after facing threats from MEPs over the Lisbon Treaty, which will be put to a referendum in Ireland and made subject to parliamentary approval in the other member states.

Governments, including those of the UK and Belgium, fear that the Directive, which would allow patients to travel abroad routinely for healthcare by 2010, would undermine their authority. UK Health Minister Dawn Primarolo has expressed reservations about patients going abroad and receiving payment for the cost of a hotel and a plane fare, leaving the National Health Service (NHS) to foot the bill. Such a trend, the UK fears, would disrupt national healthcare and social security systems.

This Directive, however, was due to be only the first step. Two further initiatives are already being prepared for this year: 1. on health workforce planning; and, 2. on patient safety.

Profile of the dentist of the future

The main objective of the CED, which represents over 300,000 dentists across Europe, is to promote high standards in dentistry and oral healthcare for European citizens. It is therefore committed to continually reviewing and updating its strategic plan in order to ensure that the profession meets oral healthcare needs in Europe both now and in the future.

Directive 2005/36 lays down minimum training requirements for dentistry, which is confirmed as a specific profession in its own right, requiring at least five years of full-time theoretical and practical training. The Directive also sets out a procedure for updating these dental training requirements in the future, in order to take account of scientific and technical progress.

In light of the above, the profile of the future dentist has to be redefined and competences updated. The CED has been working on redefining this profile and adopted a resolution at the recent Brussels General Meeting.

The conclusions were as follows:

1. The dentist of the future, in order to meet the growing and more complex needs of society, must contribute by reducing the burden of oral diseases, and by maintaining and improving oral health, since the development and health of the oro-facial region are directly connected to general health and well-being, and are essential for the quality of life of all Europeans.
2. The ultimate objective of the future dentist is to be competent in managing traditional as well as new challenges in oral health, which result from the aforementioned trends, and he/she must be able to practise evidence-based, comprehensive dentistry independently, in group practice and in close collaboration with other health professionals. In addition, a more medical orientation of dental education is needed, which will result in the need for curriculum changes in the content and form of the five-year dental training.
3. The CED is of the opinion that the basic knowledge and skills of tomorrow's dentist as acquired during basic dental training should represent the first stage in an educational continuum that should last throughout a dentist's entire practising life, and enable the dentist to prevent and treat all frequent oral diseases. Sound basic dental training must enable a practising dentist, on his own initiative, to partake in further training and professional development according to his needs.

Ethical code

A revised code of ethics for dentists was adopted at the recent Brussels General Meeting. An ethical code was first drawn up in 1965 by the CED founding members. It was last updated in 2002 to accommodate an EU directive on e-commerce. Why an update? The preamble to the code sets the update in context. It is as follows:

"Against a background of cross-border mobility of patients and health professionals in the European Union and the European Economic Area, there is a need to create a framework of reference for all dentists in their cross-border practice.

The following principles reflect the standard of professional conduct and ethics that underpin high quality dental care and services throughout Europe. They have been developed by the Council of European Dentists, which represents national dental organisations from the EU Member States and other European countries.

These are general principles that underpin the codes in the individual Member States. The national codes reflect the different cultures, traditions and needs of the public and patients in the various countries of the EU. Dentists working in another country should familiarise themselves with the national codes of that country, and respect them".

In summary, the reasons were as follows:

1. Cross-border movement of professionals throughout the EU and EEA states made updating important.



Dr Orlando da Silva, CED President, with Portugal's Health Commissioner, Prof. Maria Céu Soares Machado, who addressed the meeting.

2. The presence of an updated code sends a strong political signal by the CED to the EU institutions.

Tooth whitening update

On December 18, 2007, the Scientific Committee on Consumer

Products adopted its opinion on the safety of hydrogen peroxide in "oral hygiene products", notably tooth-whitening products. The opinion will not be published until mid-January and there will be no public consultation.

At the recent CED meeting the chairman of the Tooth Whitening Working Group spoke about a letter from the UK dental regulatory body (GDC) on the practice of tooth whitening by beauty salons. This is regarded in the UK as the illegal practice of dentistry and some 80 legal complaints have been made by individuals who have suffered adverse effects in beauty salons.

One such case has concluded and resulted in an award of £16,000 to the customer concerned, who had suffered a permanent deterioration of her asthmatic condition as a result of the use of the bleach. The beauty therapist concerned joined the tooth whitening provider, Belle Sante UK Limited, in the proceedings as a co-defendant on the basis of the safety claims they had made when selling the products to her. The company were held liable to the customer and immediately went into liquidation.

As far as BABTAC (British Association of Beauty Therapists and Cosmetologists) is aware, another 79 similar cases in the civil court system, which have been awaiting the outcome of the first case, will now proceed.

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Creating smiles

For the last eight years, a group of Irish dentists has travelled to Belarus to provide essential dental care to the residents of an orphanage there. ANN-MARIE HARDIMAN spoke to three of them about this extraordinary project.

Eight years ago, a speaker from the charity Chernobyl Aid Ireland addressed Waterford Rotary Club about the urgent need for help, including dental care, for the children of Grosovo orphanage in Belarus. About 100km from the Belarussian capital, Minsk, the area is one of many affected by the Chernobyl disaster of 1986, and the Irish charity, founded by ambulance driver Liam Grant, has been bringing supplies, and volunteers to carry out renovation and maintenance work, since 1997.

Retired dentist Donal Tully was at the Rotary Club meeting. "I expressed an interest in getting involved and, after an initial trip to assess the situation, we felt that a proper dental surgery was required. Waterford Rotary Club donated €7,500 to get us started, and the dental industry made very generous donations of equipment. We now have a purpose-built, fully equipped and operational surgery, with everything a general dentist's surgery in Ireland would have."

Making a difference

Since that first visit, several dentists have now made the journey to Grosovo, living at the orphanage for a week to 10 days at a time to deliver general dental care to the children and to anyone from the local area who needs their help. "We always say: 'If you have a toothache, please come to us'", says Donal. A local paediatric surgeon is employed as an interpreter and many of the children, who have visited Ireland on several occasions, can assist with translation.

Padraig Creedon, Principal Dental Surgeon for the Waterford region, has made the trip to Grosovo 10 times since his first visit in January 2002. He got involved after speaking to Donal Tully about the project and after the first trip, he was hooked.

"Once you go, it's difficult to walk away from," he says. "It's the most rewarding work I've ever done".

Padraig says that the dentists work "flat out" every day of their visit. "We can't and won't turn anyone away". The children soon begin to present themselves for treatment, often bringing a group of spectators. The dentists have no objection to this; Padraig points out that many of the children have had very negative experiences with

dental care in the past (local anaesthetic is not used routinely in Belarus), so seeing the Irish dentists at work shows them that there is nothing to fear. In the last few years, as more dentists have made the trip, they have been able to carry out some preventive care, and this is a major step forward. The children's teeth are generally in good condition, but between visits from Ireland they receive no dental care, and this means that the Irish contingent often arrive to find a child in considerable pain and discomfort from an untreated abscess, infection, or broken tooth.

"We need to get more bodies over there more often, so that these problems can be avoided as much as possible by visits that are better spaced out throughout the year," says Padraig. "We recently saw a young boy at the clinic who seemed very shy and unwilling to speak. It turned out that he had broken his front teeth and was very self-conscious. Once they had been repaired, he wouldn't stop smiling and chatting to everyone, showing them his new teeth."

Stories like this only serve to emphasise both the importance of the work, and the satisfaction that the dentists get from their trips to Belarus. Needless to say, Padraig is an enthusiastic advocate: "When people tell me they are interested in going, I tell them that 'you'll get rewards from this that you would never get at home', and that's the truth".

Social fallout

The children who live in Grosovo do not suffer from the severe congenital abnormalities we have often seen in media coverage of Chernobyl. The biggest problem they face is what Padraig calls the "social fallout" of the disaster, where thousands of families were displaced from rural areas and sent to live in apartment blocks in the cities. The country's authoritarian government has also made living conditions very difficult, and all of these factors have contributed to the numbers of 'social orphans', children who have one or more living parents who cannot care for them. Padraig points out that there are about 100 orphanages in Belarus, a tragic indictment of the country's social problems.

social and economic effect on the region. Chernobyl is very close to the Belarussian border, and radiation from the plant led to mass evacuations and left 20% of the country's agricultural land unusable due to contamination.

Belarussian people live in considerable deprivation. Food prices are massively inflated, while alcohol prices remain low, creating a serious alcohol problem and major poverty (a litre of vodka is cheaper than one sausage). The average nurse's salary is US\$120 per month, and that of a hospital consultant is US\$300 per month, but food prices are the same as those in Ireland.

Belarus

Belarus is a land-locked country in Eastern Europe, which declared independence from the former Soviet Union in 1991. President Alexander Lukashenko was elected in 1994 and has retained power in a series of elections condemned by the international community as corrupt. Often described as 'Europe's last dictator', President Lukashenko takes pride in an authoritarian style of government that runs along soviet lines, with government ownership of industry, and prison sentences for anyone who opposes the regime. The Chernobyl nuclear disaster in neighbouring Ukraine in 1986 had an enormous



Photographs courtesy of Johnny Fearon

LEFT: The children often arrive in groups to receive dental treatment.

ABOVE: Donal Tully and patient in the purpose-built surgery in Grosovo.

ABOVE RIGHT: The playground equipment at Grosovo was made by the inmates of Mountjoy Prison; when the Irish workers installed it, they had to show the children how to use it, as they had never seen a playground before.

BELOW: The orphanage is housed in a converted military barracks that was built in the 1950s. Chernobyl Aid Ireland carry out ongoing renovations to the buildings and grounds.

Johnny Fearon, current President of the IDA's South East Branch, became involved with the project in 2007 and, although a recent convert, he has already made two trips to Grosovo.

Johnny explains that the children enjoy taking time away from their lessons to work with the Irish volunteers, and this 'helping out' has an important function. "This isn't something to help pass the time of day, it's to give the kids a skill to help them in the future". He refers to research that was carried out to see what had become of children who left Grosovo during the last 20 years. The research found that 65% had fallen into the same poverty traps as their parents' generation. Prostitution, teenage pregnancy and alcoholism were common, and very few had jobs or had attained further education. "The poverty in Belarus is similar to poverty in Ireland at the beginning of the 1920s, but the difference is that in Ireland we had hope. Young people could get some education, and they could always emigrate as a last resort. It is almost impossible to obtain visas to leave Belarus, so people feel trapped there with no hope for the future."

If the children are to break this cycle, they need education and skills, and the project's attention is now turning in that direction. In fact, Johnny and Donal are currently assisting a female resident at the orphanage to attain the necessary qualifications to pursue a career in dentistry.

Next steps

For the future, Padraig Creedon points out that, as yet, they can only offer care to "one tiny corner of Belarus", but they would love to provide general dentistry to as many children as possible. To this end, in February 2008, Johnny Fearon, and businessman Gerry Geoghegan, will travel to another orphanage in Smorgon, on the Belarussian-Lithuanian border, to measure up for the project's second surgery. None of this would be possible without the assistance of many generous sponsors, organisations and individuals who help to make the project possible. The South East Branch of the IDA has taken over the official administration of the project so that, although they work in collaboration with Chernobyl Aid Ireland, they are now independent of them. The Branch also makes a collection at its annual scientific meeting each year. Bill Cosgrave and the North East Postgraduate Medical and Dental Board have been generous donors, as has the Metropolitan Branch of the IDA. Dental industry members Morris Dental, Dacus Dental and Dental Medical Ireland (formerly McCormack Horner) have also made generous donations of essential equipment. There is clearly enormous enthusiasm for the project, and those involved know that the commitment they are making is a long-term one, but they are happy to continue, and hopeful for the future. With 100 orphanages, there's a long way to go...



How to help

While the project has received generous sponsorship from a number of sources, they still require funding for ongoing running costs associated with the two clinics. To comply with local regulations, many medicines are sourced in Belarus, so, as Donal says, the charity requires "money and personnel" to maintain the service in the future. Specifically, the charity needs volunteers to travel to Belarus and staff the surgeries. If you would like to volunteer your services, contact Johnny Fearon, Tel: (045) 888 218, or 087 779 9110. If you would like to make a donation, the Belarus Charity Account, which is administered by the South East Branch of the IDA, is at AIB, 72-74 The Quay, Waterford. The sort code is: 93-42-75, and the account number is: 82747062.

The dental patient with a congenital bleeding disorder

Précis: With support and understanding of the diseases, dentists can be involved in the dental management and treatment of patients with congenital bleeding disorders. This paper outlines a simple algorithm for practitioners to use (**Table 1**).

Abstract: Congenital bleeding disorders account for approximately one in 10,000 births.¹ Dentists are often anxious about delivering treatment to this special group of patients. In the Irish Republic, patients with inherited bleeding disorders have their dental care co-ordinated centrally at the National Centre for Hereditary Coagulation Disorders (NCHCD), St James's Hospital, Dublin. Dental care is normally integrated with routine outpatient haematological appointments. This ensures regular monitoring of oral health and the early treatment of any hard/soft tissue pathology. This article describes, in simple diagrammatic form, the normal coagulation mechanism² (**Figures 1 and 2**), explains common coagulation terms (**Appendix 1**), and examines the three most common congenital bleeding disorders: haemophilia A, haemophilia B, and von Willebrand disease. General recommendations based on the current literature are provided with respect to procedures that are appropriate to perform in a general dental practice setting. Although not discussed in this article, it is important to note that non-coagulation bleeding disorders also exist. These include: hereditary haemorrhagic telangiectasia; blood vessel wall defects resulting from connective tissue disorders such as Marfan syndrome and Ehlers-Danlos syndrome; and, platelet disorders such as Bernard-Soulier syndrome, resulting in defective platelet adhesion.

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Introduction (Figures 1 and 2)

The haemostatic response to vessel injury involves vasoconstriction, the generation of a platelet plug, activation of the coagulation cascade resulting in fibrin clot formation, and clot lysis (fibrinolysis). Platelets adhere to the site of vessel injury by interactions between membrane glycoproteins and components of the subendothelium, such as collagen and adhesive proteins including von Willebrand factor (vWF) and fibronectin. Platelets are then activated by a variety of agonists at the site of vessel injury, resulting in shape change, aggregation, release of secretory granules and the expression of a procoagulant phospholipid surface, which provides an ideal bed on which the coagulation cascade is activated.

Tissue factor (TF) is expressed at the site of vessel injury, and binds to and activates factor VII (FVII), leading to the generation of TF:FVIIa. This complex is critical in the initiation of the coagulation cascade *in vivo* and activates factor X (FX) either directly or via factor IX activation. Activated factor X

(FXa) converts prothrombin to thrombin, which in turn cleaves fibrinogen to fibrin. Factor XIII cross-links fibrin to produce an insoluble fibrin clot. Factors V and VIII are essential cofactors in the activation of FX and prothrombin, respectively.

The final component of the haemostatic response involves clot lysis, which is mediated by the fibrinolytic system. Plasmin is produced by the action of urokinase or tissue plasminogen activator on plasminogen, leading to the dissolution of the clot.²

Bleeding disorders

Von Willebrand disease

This is the most common inherited bleeding disorder, affecting 1% of the population.³ Clinically, the disorder is characterised by spontaneous bleeding from mucosal membranes, excessive bleeding following dental extraction, menorrhagia, and a prolonged bleeding time in the presence of a normal platelet count.

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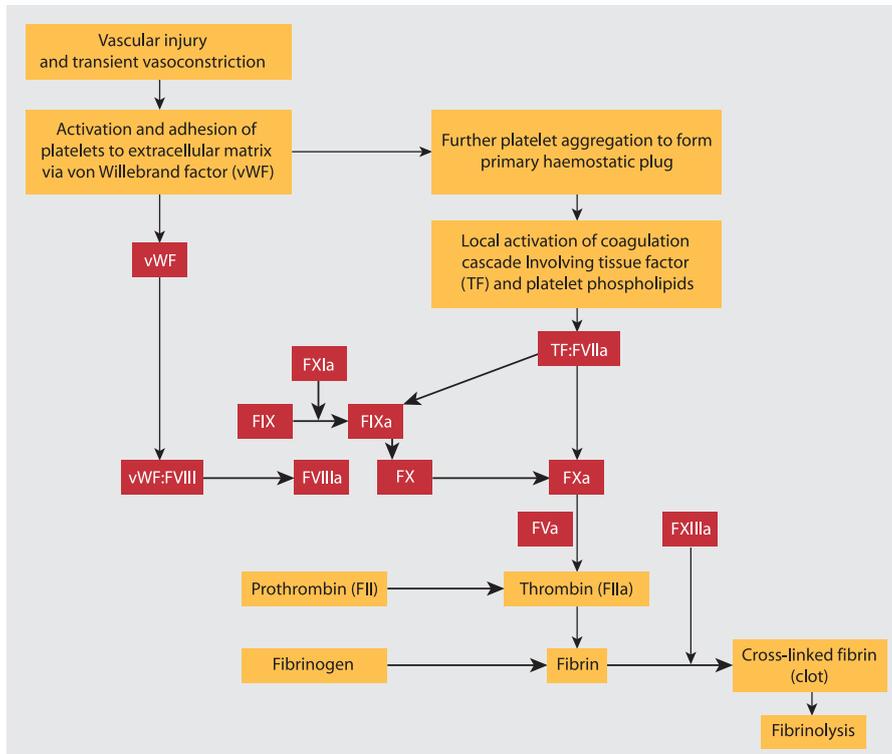


FIGURE 1: Simplified overview of the coagulation cascade. The key events in the coagulation cascade leading to fibrin clot formation are illustrated. The generation of thrombin plays a critical role in this process and activates platelets, FV, FVIII, FXIII and FXI, in addition to cleaving fibrinogen to fibrin. The activated form of each clotting factor is denoted by the letter 'a' (TF = tissue factor).

Von Willebrand disease affects both males and females. In most cases, it is an autosomal dominant disorder, characterised by reduction in quantity or quality of von Willebrand factor (vWF). This factor plays an important role in both primary and secondary haemostasis (Figure 1), being important to the adhesion of platelets to the sub-endothelium during vascular injury, as well as binding to and stabilising factor VIII.⁴ A deficiency in vWF thus results in a secondary decrease in the levels of factor VIII.

There are three subtypes of von Willebrand disease. Type 1 is the most common and is characterised by a reduced quantity of circulating vWF. The other, less common, varieties show qualitative and quantitative defects in vWF; in type 2 there is a defect in function rather than amount of vWF,⁴ and in type 3, levels of vWF are undetectable.⁵ The severity of the disease is measured according to levels of the following:

- vWF;
- factor VIII; and,
- vWF:ristocetin cofactor. Ristocetin cofactor assays measure the ability of vWF in the patient's plasma to agglutinate formalinised platelets in the presence of ristocetin. Decreased levels of ristocetin cofactor are associated with von Willebrand disease.

Treatment

Desmopressin (DDAVP) is a synthetic analogue of antidiuretic hormone. It increases plasma levels of factor VIII and vWF by inducing release from stores in the endothelial cells.⁴ Dental treatment can be performed in a general practice, according to the factor VIII levels (Table 1) following preoperative infusion of desmopressin from a specialist haematology unit. However, desmopressin is

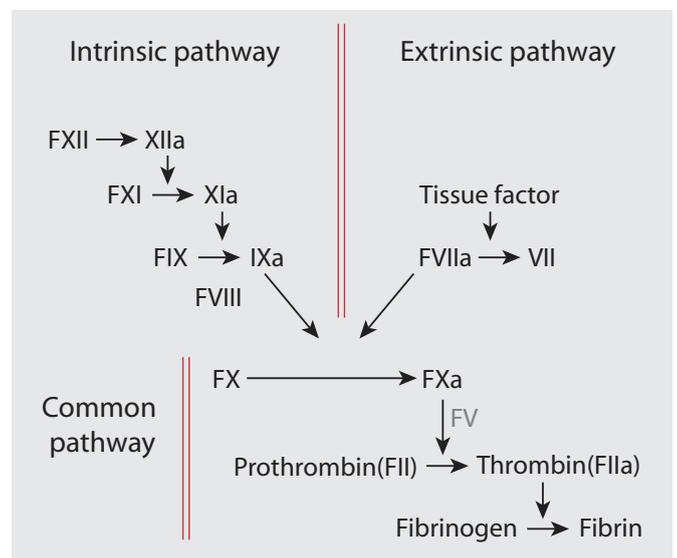


FIGURE 2: Simplified diagram showing the extrinsic and intrinsic coagulation pathway. The initial conversion of factor X to Xa by the TF-VIIa complex leads to generation of small quantities of thrombin, which back activate V and VIII. Rapid thrombin generation then proceeds with feedback to FXI and converts soluble fibrinogen to insoluble fibrin. The intrinsic pathway is less important as an initiator of blood coagulation in higher animals.¹⁹

contraindicated in type 2B and type 3, because it stimulates release of a dysfunctional vWF, leading to platelet aggregation and a severe thrombocytopenia. These require clotting factor replacement.³ Patients with type 2B and type 3 can be treated in general practice provided treatment is co-ordinated with a specialist haematology unit.

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TABLE 1: Suitability for dental treatment in a general practice is assessed according to the level of clotting factor present in the plasma.

All treatment should only be performed following discussion with a haematologist.

1. Factor levels >50%

Multiple routine extractions and single surgical extractions can be performed in a general dental practice, provided local measures and a tranexamic acid mouth rinse (10ml qds for 10 days) is prescribed postoperatively.

2. Factor levels 30-50%

These patients can be treated on a shared care basis with the specialist haematology unit.

Treatment appropriate to perform in a general dental practice includes:

- a) local anaesthesia (buccal infiltrations, and intrapapillary and intraligamental injections);
- b) periodontal treatment (supra- and subgingival scaling);

- c) restorative treatment, including the provision of crowns/bridges;
- d) root canal therapy;
- e) dentures; and,
- f) orthodontics (fixed and removable appliances).

Treatment that must be co-ordinated with a specialist haematology unit includes:

- a) local anaesthesia (inferior alveolar blocks, and lingual/palatal infiltrations);
- b) periodontal treatment (deep root planing and periodontal surgery); and,
- c) all dental extractions and dentoalveolar surgery.

3) Factor levels <30%

All dentate patients will need to have their treatment co-ordinated with a specialist haematology unit. Edentulous patients may have non-invasive treatment in a general dental practice, provided special care is taken with the handling of soft tissues during impressions, etc.

Haemophilia A

Haemophilia A is the most common hereditary disease associated with serious bleeding and accounts for about 85% of haemophilia patients. It has an incidence of 1:5,000 in the male population.⁴ It is a sex-linked disorder. This X-linked recessive disorder is caused by a reduced amount of factor VIII. Approximately 30% of cases are caused by new genetic mutations and therefore do not have a family history.

The severity of haemophilia A corresponds to the level of factor VIII in the plasma. Patients with levels above 25% can lead a relatively normal life, often undiagnosed. Prolonged bleeding following a dental extraction can sometimes be the first sign of mild disease.³ Patients with mild (factor VIII levels >5%), and moderate (1-5%) haemophilia are usually asymptomatic, although bleeding following minor trauma (e.g., dental extraction) can be excessive.⁶ Levels of <1% result in a severe haemophilia characterised by development in early childhood of haemarthroses, easy bruising, and potentially life-threatening bleeding following minor trauma.

Factor VIII assay is required for diagnosis. These patients will have a normal bleeding time, normal platelet count and normal prothrombin time (PT), but a prolonged partial thromboplastin time (PTT).

Current treatment of haemophilia A involves infusion of recombinant (genetically engineered) Factor VIII. This has avoided the risk of viral transmission that was a major risk in the 1980s with the use of pooled blood products. A patient's suitability for dental treatment in a general practice will depend on their factor VIII levels (Table 1).

Haemophilia B

Haemophilia B is inherited as an X-linked recessive trait. This disorder results in reduced levels of factor IX, and accounts for approximately 15% of haemophilia patients. It has an incidence of 1:15,000 in the male population.⁴ Clinically, factor IX deficiency is indistinguishable

from haemophilia A.⁷ The severity of the disease corresponds to the level of factor IX in the plasma. This disorder is categorised as mild (factor IX levels >5%), moderate (1-5%), or severe (<1%).

Diagnosis is only possible by assay of factor IX levels. Treatment involves infusion of recombinant factor IX. A patient's suitability for dental treatment in a general practice will depend on their factor IX levels (Table 1).

Specific problems associated with congenital bleeding disorders

1. Inhibitory antibodies

A problem associated with the administration of replacement coagulation factors is the development of inhibitory antibodies.⁷ Up to 30% of patients with severe haemophilia suffer the development of these antibodies, thus complicating their treatment.⁸ These patients should have their factor inhibitor levels checked before invasive dental treatment. According to the inhibitor level, patients can be classified into two groups: low and high titre inhibitors. Patients with a low titre can have their dental treatment in the same manner as those with no antibodies. These patients are suitable for treatment in a general practice setting depending on their factor VIII levels (Table 1). Patients with a high titre will require recombinant factor VIIa pre-operatively,³ and therefore any dental treatment in general practice will need to be co-ordinated with a specialist haematology centre.

2. Contracted viral disease

Up until 1985, fractionated human factor concentrates obtained from pooled blood sources had the potential to carry blood-borne viruses such as hepatitis B and C, and human immunodeficiency virus (HIV), thus infecting many haemophiliacs.^{9,10} Subsequent heat treatment, and now recombinant technology, has produced

Appendix 1

Coagulation terms

1. Prothrombin time

This procedure tests the adequacy of the extrinsic coagulation pathway. A prolonged prothrombin time may result from a deficiency of factors II, V, VII, or X.

The test is performed by adding tissue factor to plasma; however, differences in tissue factor reagents used for testing can give different prothrombin time results for the same plasma. The international normalised ratio (INR) has been devised to standardise the results. Each manufacturer gives an international sensitivity index (ISI) for any tissue factor they make. The ISI value indicates how the particular batch of tissue factor compares to an internationally standardised sample.

The INR is the ratio of the patient's prothrombin time to a normal control when using an international reference preparation. The use of this system means that prothrombin time tests on a given plasma sample using different tissue factors result in the same INR and that anticoagulant control is comparable in different hospitals

safe blood-clotting factors. The bleeding tendency in these infected patients can be aggravated by liver damage from hepatitis, and in HIV patients by the effects of antiretroviral therapy such as protease inhibitors.¹¹

Haemophilic patients with HIV infection requiring invasive dental treatment should be referred to the specialist dental unit at a haematology centre. As long as these patients are managed with appropriate precautions in specialist units, they generally suffer no real problems with post-dental surgical complications.¹²

3. Mobility/chronic pain/dental phobia

Patients with severe haemophilia may be severely disabled from repeated episodes of haemarthroses and may suffer drug dependence as a result of the associated chronic pain. These patients are often extremely anxious about receiving dental treatment outside a specialist centre. This is often due to the patient's concern that dentists may not have the knowledge and experience to provide their treatment safely, and is compounded by dentists' lack of confidence in providing invasive treatment.^{13,14}

Dental management

1. Identification of patients at risk

When taking a medical history, it is important to obtain details of any previous episodes of prolonged bleeding, as 30% of cases of mild haemophilia are first diagnosed following extraction of a tooth, or a mouth biopsy with persistent oral bleeding.¹⁵ Any patients with an unexplained history of bleeding should be investigated and probably referred to a haematologist prior to commencing dental treatment.

2. Preventive care

Patient education and preventive dentistry should commence as early as possible, to minimise the need for invasive dental

across the world. The normal INR is 1 and any figure >1 indicates a tendency to bleed.

2. Partial thromboplastin time

This procedure tests the integrity of the intrinsic coagulation pathway. Prolongation of partial thromboplastin time may occur with a deficiency of factors II, V, VIII, IX, X, XI, or XII.

3. Bleeding time

The bleeding time is the time required for bleeding to stop from a small, standardised skin incision. It reflects the stages of primary haemostatic platelet plug formation. The bleeding time is prolonged with: von Willebrand disease; defects in the vessel wall; and, when there is a decrease in the number or function of platelets. The normal bleeding time is between two and nine minutes.

4. Platelet count

A low platelet count is associated with an increased risk of bleeding due to the effect on primary haemostatic plug formation. The platelet count is usually normal in coagulation disorders because primary haemostasis occurs independently of fibrin formation. The normal platelet count is 150-450 x 10⁹/l.

treatment that could lead to potentially severe bleeding complications.³ The preventive regimen should include dietary advice, oral hygiene instruction, regular dental assessment including bitewing radiographs to detect early caries, and the use of topical fluoride and fissure sealants.¹⁶

3. Invasive dental treatment

The dental management of the patient with a congenital bleeding disorder must be performed in conjunction with a haematologist, to ascertain the severity of the disease and to assess suitability for treatment in a general dental practice.⁴

a) Local anaesthesia

For inferior alveolar blocks, and lingual/palatal infiltrations, a factor level above 50% is required. It is appropriate for patients with clotting factor levels above 30% to have buccal infiltrations, and intrapapillary and intraligamental injections, in the general dental practice.

b) Extractions

Multiple routine extractions and single surgical extractions can only be performed on patients with factor levels above 50%. In addition, the use of local measures, including resorbable sutures, and packing the socket with a haemostat such as oxidised cellulose (Surgicel) is important. Dental patients at the NCHCD are also prescribed a 5% tranexamic acid mouth rinse (10ml qds for 10 days) postoperatively. Tranexamic acid inhibits the activation of plasmin, thereby reducing fibrinolysis (**Figure 1**). Patients must not be discharged until haemostasis has been obtained.¹⁷

c) Periodontal treatment

Following any periodontal treatment at the NCHCD, patients are prescribed a tranexamic acid mouth rinse (10ml qds for one week) postoperatively. Supra/subgingival scaling can only be performed on patients with factor levels above 30%. To deep root plane and perform periodontal surgery, factor levels above 50% are required.

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4. Restorative treatment

Restorative treatment, including the provision of crowns and bridges, can be carried out in a general dental practice, provided the guidance on local anaesthetic as detailed above is followed.¹⁷ In addition, patients at the NCHCD are prescribed a tranexamic acid mouth rinse post treatment (five days for supragingival restorations, seven days for subgingival).

5. Endodontic treatment

Endodontic treatment is not usually associated with problems, provided the guidance on local anaesthetic as detailed above is followed. However, vital pulp at the apical foramen may bleed for some time and cause pain. The risk of peri-apical bleeding associated with apical root perforation can be minimised with pre-operative peri-apical x-rays using the paralleling technique, and apex locators.

6. Dentures

Dentures can be safely provided in the general dental practice, provided special care is taken with the handling of the oral soft tissues during impressions, etc. However, denture design and patient education are important to prevent adverse effects on gingival health associated with plaque accumulation around the prosthesis.^{17,18,12}

7. Orthodontics

Patients with congenital bleeding disorders can be provided with both fixed and removable appliances in the general dental practice. Regular monitoring, with emphasis on prevention, is important. Extra care needs to be taken when fitting the appliance to ensure the gingiva is not traumatised.¹⁷

Conclusion

Dentists are often unwilling to treat patients with congenital bleeding disorders due to the fear of severe haemorrhagic complications. Depending on their factor level, patients with mild disease can receive various forms of dental treatment in a general practice (Table 1). However, patients with moderate or severe disease will need to have their dental treatment co-ordinated with a specialist haematological unit. With the help and guidance of the haematologist, dentists in general practice can confidently treat patients with mild forms of the disease.

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Oral health and orthodontic considerations in children with juvenile idiopathic arthritis: review of the literature and report of a case

Abstract: Juvenile idiopathic arthritis (JIA) is a severe disease of childhood, which comprises a diverse group of distinct clinical entities of unclear aetiology. Some abnormality of the immune system is present in all JIA cases. In its most severe clinical form, JIA may show localised and/or systemic complications, including functional impairment of the affected sites. This may result in variable growth and developmental anomalies. In many JIA cases, where the temporomandibular joint (TMJ) is affected, mandibular growth may be restricted, thus leading to the development of mandibular hypoplasia and/or retrognathism. As a result, it is not uncommon for JIA patients to present with skeletal Class II and open bite malocclusions. Furthermore, in JIA cases with unilateral TMJ involvement, craniofacial asymmetry may occur. In such cases, early orthodontic intervention facilitates both the skeletal and the occlusal rehabilitation.

Increased prevalence of dental caries and periodontal disease in JIA cases may be attributed to a combination of aetiological factors, including difficulties in executing good oral hygiene, unfavourable dietary practices and side effects from the long-term administration of medication. In addition, an association between periodontal disease and JIA has been reported based on their similar pattern of clinical dysregulation of the inflammatory process. This paper presents a brief description of JIA, with special reference to dental health and orthodontic treatment considerations. In addition, a case is presented where the appropriate orthodontic intervention led to the establishment of a normally functioning, as well as an aesthetically pleasing, occlusion.

KEY WORDS: juvenile idiopathic arthritis, craniofacial growth, TMJ, oral health, malocclusion, orthodontic treatment.

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Introduction to juvenile idiopathic arthritis

Juvenile idiopathic arthritis (JIA) is a major connective tissue disease and one of the most common chronic illnesses of childhood.¹ Essentially, it is an early-onset form of arthritis affecting one or more joints. JIA manifests before the age of 16 and remains active for more than six weeks.² Its incidence is estimated at around 1-2:10,000 and its prevalence at 1:1,000.³⁻⁶ The diagnostic criteria of JIA are reported in **Table 1**.⁷ In general, three major types of JIA are recognised: oligoarthritic; polyarthritic; and, systemic. These three types are briefly outlined in **Table 2**.² The exact cause of JIA

remains unclear, although it appears to be multifactorial, involving infectious, genetic and endocrine factors.⁸⁻¹²

The clinical course of JIA usually involves several sequential long or short periods of flare-ups and remissions.¹³⁻¹⁴ It may affect any joint in the body and, in its most severe form, it may be accompanied by systemic complications of the cardiovascular system, the urinary system and the eyes.¹⁴ Systemic or local disturbances of growth may be observed in JIA patients,^{13,14} depending on which joints are affected. This may be related to either the disease or to the medication.¹⁵ Most JIA cases require chronic administration of multi-drug medication, including non-

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TABLE 1: Diagnostic criteria and types of juvenile idiopathic arthritis.⁷

- Age at onset younger than 16 years;
- arthritis in one or more joints (defined as swelling or effusion, or the presence of two or more of the following signs: limitation of range of motion; tenderness or pain on motion; and, increased heat);
- duration of disease ≥ 6 weeks;
- type of onset of disease during the first six months (polyarthritic when five or more joints are affected; oligoarthritic when less than five joints are affected; systemic when intermittent fever is present and other systems of the body are involved; psoriatic; enthesitis related; and, other), and
- exclusion of other forms of juvenile arthritis.

steroidal anti-inflammatory, steroidal, disease-modifying anti-rheumatic, and immunosuppressive drugs. The main objective of such treatment is to restore and maintain quality of life for patients, while alleviating pain and controlling inflammation, thereby preventing or minimising joint destruction and deformity.¹⁶

Despite treatment, an effective permanent change in the clinical course of the disease may not be achieved until adolescence where, in up to 70-85% of cases, a spontaneous remission is observed.¹⁷ Additionally, prolonged administration of medication may inflict severe side effects because of its toxicity, especially with regard to skeletal growth and development. During active phases of the disease, ossification at the epiphyses is accelerated, followed by premature closure of the epiphyseal growth plates in later stages. This may eventually result in retardation of skeletal growth and joint dysfunction.² In many JIA cases where the temporomandibular joints (TMJs) are affected by the disease, growth of the mandible is restricted, resulting in severe functional and aesthetic problems of the craniofacial complex.¹⁸⁻²³ Complications due to the disease itself, as well as its treatment, may affect oral health, as evidenced by the reported increased prevalence of caries and periodontal disease in JIA patients.²⁴⁻²⁶

TMJ involvement in JIA cases

The reported prevalence of TMJ involvement in patients with JIA varies between 50% and 87%.²⁷⁻³⁴ In many such cases, temporomandibular joint dysfunction (TMD) is observed, presenting with restricted mandibular movements, and reduced and/or painful functional or resting activity of the masticatory muscles. Furthermore, the underlying pattern and direction of dentofacial growth may be disturbed.^{21,22,27,28,30,35-38} As a result, TMJ involvement in JIA patients is often associated with the development of certain craniofacial and dental features including:

- decreased mandibular length;^{18,19,22,39-42}
- Class II division 1 malocclusion, mostly due to mandibular

TABLE 2: Characteristics of the three major types of juvenile rheumatoid arthritis.²

	Polyarthritic	Oligoarthritic	Systemic
Relative frequency	30%	60%	10%
Number of joints involved	≥ 5	≤ 5	variable
Sex ratio (F:M)	3:1	5:1	1:1
Extra-articular involvement	moderate	not present	prominent
Chronic uveitis	5%	20%	rare
Seropositivity – rheumatoid factor	15%	rare	rare
Seropositivity – antinuclear antibodies	40%	85%	10%
Prognosis	Moderately good	Excellent	Moderate

retrognathism;^{19,22,31,39,40,42-44}

- hyperdivergent facial type, increased mandibular plane angle, and decreased posterior facial height;^{21,22,33,39,40-42,44,45}
- facial asymmetry in cases with unilateral TMJ involvement;²⁰ and,
- decreased overbite, open bite or open bite tendency.^{18,21,22,29,39,41,43,46,47}

The unfavourable craniofacial growth pattern observed in many JIA patients is usually regarded either as primary or secondary. Primary unfavourable growth pattern is attributed to the disturbed growth of the affected mandibular condyles,^{18,19,22,39,46,48,49} while secondary is attributed to the children's impaired oral function^{21,45} and/or medication-related somatic growth retardation.^{20,40}

Clinical examination may not be considered as an accurate method of diagnosing TMJ involvement in JIA patients.^{18,19,30,47,49,50} Therefore, the application of an appropriate TMJ imaging method is often indicated.⁵¹⁻⁵³ Techniques used include panoramic radiography (PR), tomography, arthrography, fluoroscopy, computerised tomography, magnetic resonance imaging (MRI), and radionuclide imaging.⁵⁴⁻⁵⁶ There is almost universal agreement that the examination of the osseous surfaces of the TMJ is facilitated by the application of tomography rather than plain film techniques.⁵⁷⁻⁶¹ Fine bone details can be visualised without projection limitations, while the real shape and size of anatomical structures is displayed.^{62,63} In contrast, imaging of soft tissues of the TMJ is investigated in most cases by the use of MRI, which is non-invasive and does not result in the patient being exposed to ionising radiation.^{64,65}

Dental health considerations in JIA patients

Although TMJ involvement in JIA is well described, only a few studies report its potential adverse effects on dental health. Several factors related to JIA may unfavourably affect oral health. TMJ-related dentofacial abnormalities may be considered as contributing factors in the aetiology of oral diseases. TMD accompanied by impaired masticatory function and functional impairment of upper limbs may

affect toothbrushing competence.⁶⁶⁻⁶⁸ Dietary practices such as the consumption of softer, more sugary foods in frequent small amounts, sweets given as consolation, the use of oral medication containing sugar^{43,69-71} and factors related to psychological issues delaying optimal dental care,^{26,72} all adversely affect oral health.

In JIA cases, an increased prevalence of dental caries^{24,25,73,74} and a higher risk for periodontal disease have been reported.^{75,76} Interestingly, some common clinical and pathogenic features of periodontitis and rheumatoid arthritis have been recognised.^{77,78} This implies a possible association between the two diseases that may share a common underlying dysregulation of the inflammatory response.⁷⁷ Alternatively, the reported higher prevalence of periodontal disease may be considered as secondary to the overall higher plaque accumulation recorded in JIA patients,⁷⁹ or to the long-term administration of medication resulting in immunosuppression, xerostomia, stomatitis and gingival overgrowth.⁸⁰ Whatever its cause, poor oral health is considered to be potentially detrimental for the systemic condition of JIA cases because untreated dental caries and/or periodontal disease, combined with poor oral hygiene, may increase the risk for systemic infection, especially if the patient is taking immunosuppressive drugs such as methotrexate.²⁶

In all JIA cases, intensive prophylactic and therapeutic measures are required to prevent or reduce the potential damage to the dental and periodontal tissues. Regular dental and orthodontic examination, case-specific oral hygiene instructions, topical and systemic use of fluoride, appropriate dietary modification, and prescription of sugar-free medicines are of prime importance for maintaining optimal dental health in patients with JIA.^{26,72} As immunosuppression is a common side effect of several anti-rheumatic drugs, it may be wise to apply antibiotic prophylaxis before dental management of certain JIA patients.

In addition to advice on prevention, and treatment for dental diseases, dentists should also provide information to the patient and their family regarding JIA's possible consequences for oral health. It is not uncommon for lay people parenting JIA patients to be totally unaware of the effects of JIA on oral health.⁸¹

Orthodontic treatment considerations in JIA patients

There is extensive documentation regarding the impact that TMJ involvement may have on the pattern of craniofacial growth in JIA patients, resulting in the development of certain malocclusions.^{19-22,31,29} Accordingly, case-specific objectives of orthodontic treatment in JIA patients should be assessed, always keeping in mind that the principal objectives in the management of the systemic disease are relief of pain and discomfort, avoidance of permanent joint damage and preserving an acceptable level of quality of life.²³ In any JIA case, the indicated orthodontic treatment can be applied on the condition that TMJ inflammation caused by the systemic disease is controlled by proper medical care.^{82,83} In cases where limitation of any mandibular movement is observed, the application of a properly designed occlusal splint is indicated to alleviate TMD symptomatology and, while unloading the joints, to re-establish normal masticatory physiology.²⁸ Subsequently, mandibular retrognathism/hypoplasia is typically

addressed by orthodontic/orthopaedic treatment with functional appliances.²²

It is not ubiquitously accepted that orthodontic treatment should be instigated early in all cases presenting malocclusions warranting prompt intervention.^{22,84} The reluctance of many practitioners to treat skeletal Class II malocclusions of JIA patients with functional appliances while the disease remains active is due to the supported risk of flare-up in the articular surfaces of the TMJs, resulting in a net bone loss in the condylar growth centre.⁸⁵ Whether justified or not, such delayed intervention would result in excluding any orthopaedic effect from orthodontic treatment, since full remission of JIA does not occur until adolescence. Thus, in the majority of cases, the only choices remaining for such cases would be treating them in late adolescence, orthodontically-induced occlusal camouflaging of the underlying skeletal discrepancy or, even, in extreme cases, the application of a combination of orthodontic treatment and orthognathic surgery.^{21,86,86-89} In the latter cases, costochondral grafting may be applied to serve as replacement for the completely destroyed condylar head.^{90,91}

In contrast to postponing treatment until cessation of growth, early treatment with functional orthodontic appliances aims to achieve and maintain occlusal balance, and rehabilitate and preserve TMJ function, while allowing for uninhibited mandibular growth.^{28,32,43,67} There is evidence that if functional conditions are created, growth has the potential to normalise.⁹² Close monitoring of the reaction of the condylar growth centre to functional stimuli is of utmost importance to decrease the risk of possible undesirable side effects. After the normalisation of craniofacial growth pattern, the application of fixed orthodontic appliances facilitates in finishing the orthodontically induced occlusal rehabilitation. In JIA cases presenting non-skeletal malocclusions, timely application of fixed orthodontic appliances only is indicated. In any JIA case warranting some kind of orthodontic treatment, it must be noted that the administered medication may interfere with bone physiology, adversely affecting bone turnover, thereby restraining orthodontic tooth movements. In all cases, light orthodontic forces should be applied to eliminate the risk of side effects such as apical root resorption, while facilitating optimal tooth movement.²³

Case report

A female patient, aged 10 years and six months, presenting polyarthritic JIA (involving at its onset both knees and several joints of the hands), diagnosed at the age of two at the Paediatric Rheumatology Department of the Paediatric Clinic "Aglia Kyriakou" of Athens, was referred for orthodontic consultation with special emphasis placed towards a comprehensive evaluation of the TMJ physiology. At the patient's initial admittance, the disease was in remission using medication that included methotrexate in combination with certain corticosteroids. Her medical history revealed a penicillin allergy. The physical examination did not show any clinically significant aberrations from normal height and weight percentiles. Her extra-oral examination showed symmetrical craniofacial features along with normal proportions of her anterior

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FIGURE 1: The anterior facial view of the patient at rest and smiling at her initial admittance.

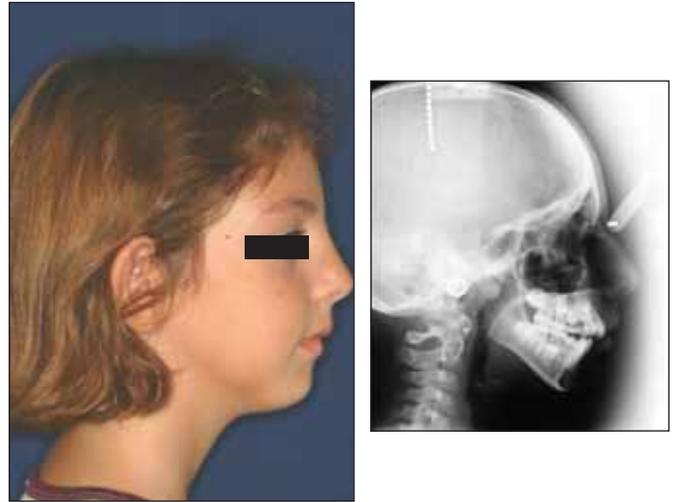


FIGURE 3: The profile view of the patient and the lateral cephalometric radiography at her initial admittance.

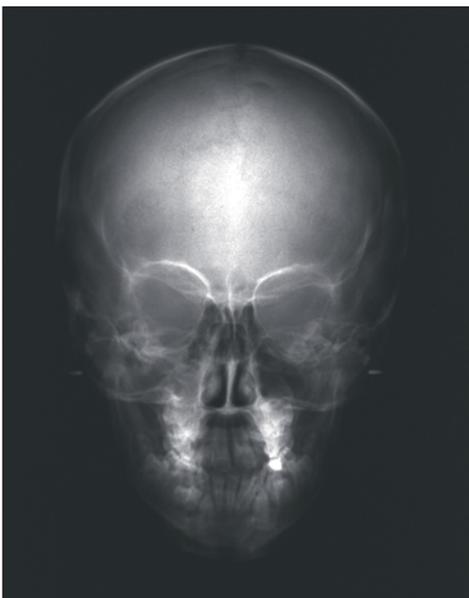


FIGURE 2: The posteroanterior cephalometric radiography did not reveal any significant asymmetry of any craniofacial structure.



FIGURE 4: The anterior and lateral view of the patient's occlusion before the initiation of orthodontic treatment.

lower facial height (**Figure 1**). These were also evidenced by the evaluation of the posteroanterior cephalometric radiograph (**Figure 2**). In contrast, her profile view was concave; however, at rest position some interference of the lips was evident in addition to some tension of the genial muscle (**Figure 3**). Overall, her prominent ears affected her facial aesthetics unfavourably and the aesthetics of her smile were impaired by the malaligned anterior teeth (**Figure 1**).

The intra-oral examination revealed a late mixed dentition stage. She had a Class II division 1 malocclusion with bilateral posterior crossbite, severe anterior crowding of both arches, a reduced overbite and an increased overjet (**Figure 4**). No dental pathology was observed with the exception of some plaque-induced gingival inflammation restricted mostly to the crowded areas. The clinical TMJ evaluation did

not show any signs and symptoms of TMJ dysfunction and no restriction was observed in her range of movements. The examination of the panoramic and the corrected sagittal tomography revealed some flattening and erosive lesions on both condylar articular surfaces (**Figures 5 and 6**). The study of the lateral cephalometric radiograph showed a hyperdivergent facial growth type presenting skeletal Class II division 1 malocclusion, mostly due to the posteriorly and downward rotated direction of mandibular growth. An increase of the lower to the total anterior facial height ratio was noted, in addition to a clinically significant decrease of the posterior to anterior facial height ratio. These observations implied that mandibular growth was impaired, probably as a result of the condylar growth centres having been affected by JIA.



FIGURE 5: The initial panoramic radiograph of the patient.

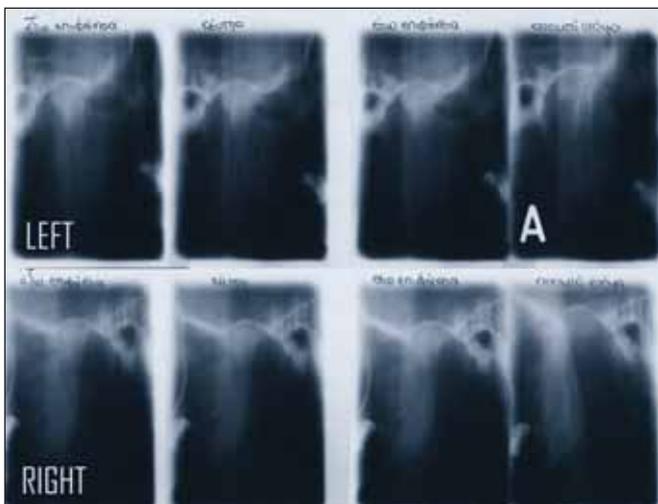


FIGURE 6: The tomographical views of the patient's TMJs (corrected by the use of submental-vertex radiograph).



FIGURE 7: The anterior and lateral view of the patient's occlusion after the removal of fixed orthodontic appliances.



FIGURE 8: The anterior facial view of the patient at rest and smiling after the completion of her orthodontic treatment.

The severe dental crowding, in conjunction with the patient's unfavourable facial growth pattern and the incompetent lips, determined the orthodontic treatment plan, comprising the extraction of all four first premolars. The case was assessed as one requiring maximum anchorage, which initially involved a palatal bar connecting the banded upper first permanent molars, followed by a high-pull headgear. Full-mouth fixed orthodontic appliances were sequentially applied for a total period of two years and six months. On successive appointments, specific emphasis was placed on the importance of the patient maintaining optimal dental hygiene. After the completion of treatment the appliances were removed and the retention protocol followed. A Hawley-type retainer was used for the upper arch and a fixed lingual retainer on the lower anterior teeth. Overall, the post orthodontic extra-oral and intra-oral clinical examination of the patient was quite satisfactory with regard to the occlusal and aesthetic dental and facial characteristics. No dental pathology was observed regarding the development of either carious (or even white spot) lesions or periodontal complications. The gingival contour of all teeth was firm and lacking severe inflammatory signs (no bleeding on probing, periodontal sulcus depth less than 3mm) although some localised plaque accumulation was evident. The occlusal view of both dental arches was normal and co-ordinated with each other, and their midlines coincided (Figure 7). Overall, an aesthetically pleasing smile was accomplished by the proper alignment of the upper anterior teeth (Figure 8). The post-treatment profile line of the patient had become almost orthognathic, although reminiscent of its former concave form (Figure 9). Even more important was the fact that the vertical dimension of the craniofacial growth was controlled. The patient's lips were in contact at rest position, although the upper lip was flatter and the nose a bit more prominent. The post-treatment panoramic radiograph did not reveal any clinically significant apical root resorption, interproximal dental surfaces caries, or loss of periodontal support. The mesiodistal axial inclination of maxillary left lateral incisor and canine did not appear ideal as viewed in the panoramic radiograph; however, it was

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FIGURE 9: The profile view of the patient and the lateral cephalometric radiography after the completion of her orthodontic treatment.



FIGURE 10: The final panoramic radiograph of the patient.

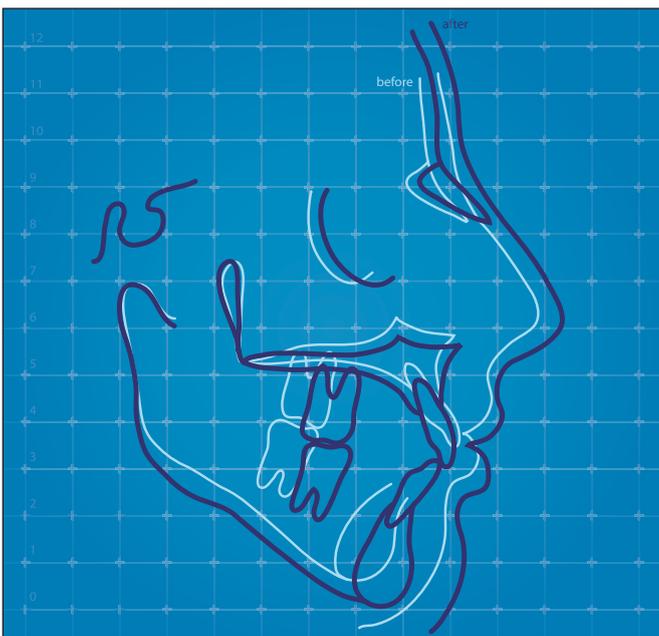


FIGURE 11: The juxtaposition of the tracings of the lateral cephalometric radiographs taken before (white line) and after (navy blue line) the completion of the orthodontic treatment.

satisfactory on an intra-oral view. A further concern was the direction of eruption of the lower third molars, which warranted some attention in future recall visits (Figure 10).

The post-treatment lateral cephalometric study, although still determining a Class II skeletal relationship, revealed a reduction of initial values of respective variables. In addition, improved ratios of lower anterior to total anterior facial height, and posterior to anterior facial height, were noted. The interincisal angle was almost normalised owing to the favourable uprighting of upper incisors and some labial inclination of the lower incisors (Figure 11).

Finally, but most importantly, no signs or symptoms of TMJ dysfunction were recorded throughout orthodontic treatment.

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ABSTRACTS

Occlusal changes following posterior tooth loss in adults. Part 1. A study of clinical parameters associated with the extent and type of supraeruption in unopposed posterior teeth

Craddock, H.L., Youngson, C.C., Manogue, M., Blance, A.

Purpose

One of the barriers to restoring an edentulous space may be the supraeruption of an unopposed tooth to occupy some or all of the space needed for prosthetic replacement. The aim of this study was to determine the extent and type of supraeruption associated with unopposed posterior teeth and to investigate the relationship between these and oral and patient factors.

Materials and methods

Diagnostic casts of 100 patients with an unopposed posterior tooth and of 100 control patients were scanned and analysed to record the extent of supraeruption, together with other clinical parameters. The type of eruption present was defined for each subject as 'periodontal growth', 'active eruption', or 'relative wear'. Generalised linear models were developed to examine associations between the extent and type of supraeruption and patient or dental factors. The extent of supraeruption for an individual was modelled to show association between the degree of supraeruption and clinical parameters. Three models were produced to show associations between each type of supraeruption and clinical parameters.

Results

The mean supraeruption for subjects was 1.68mm (SD 0.79, range 0 to 3.99mm), and for controls was 0.24mm (SD 0.39, range 0 to 1.46mm). The extent of supraeruption was statistically greater in maxillary unopposed teeth than in mandibular unopposed teeth. Supraeruption was found in 92% of subjects' unopposed teeth.

Conclusions

A generalised linear model could be produced to demonstrate that the clinical parameters associated with supraeruption are periodontal growth, attachment loss, and the lingual movement of the tooth distal to the extraction site. Three types of supraeruption, which may be present singly or in combination, can be identified. Active eruption has an association with attachment loss. Periodontal growth has an inverse association with attachment loss, and is more prevalent in younger patients, in the maxilla, in premolars, and in females. Relative wear has an association with increasing age and is more prevalent in unopposed mandibular teeth.

Journal of Prosthodontics 2007; 16 (6): 485-494.

Occlusal changes following posterior tooth loss in adults. Part 2. Clinical parameters associated with movement of teeth adjacent to the site of posterior tooth loss

Craddock, H.L., Youngson, C.C., Manogue, M., Blance, A.

Purpose

Much anecdotal evidence is available on tooth positional changes following loss of an adjacent tooth, but only a few studies are available. In Part 1 of this series, supraeruption was assessed and generalised linear models were made to determine the clinical parameters associated with the supraeruptive process. The models demonstrated that clinical parameters were not only associated with the extent of supraeruption, but also with the type of eruption present. This investigation of tooth positional changes adjacent to sites of posterior tooth loss attempts to provide increased understanding of the magnitude, direction, and associated features that may be helpful in decision making and treatment planning in the clinical setting.

Materials and methods

A group of 100 patients with an unopposed posterior tooth, with 100 age-, sex-, and bone level-matched controls, were drawn from patients undergoing routine restorative care at Leeds Dental Institute. Study models were scanned, and the extent of eruption, type of eruption of the unopposed tooth, the overbite, overjet, buccal occlusion, and degree of crowding in the dentition, tipping, rotation, and buccal movement of the teeth associated with the edentulous site were recorded. Generalised linear models were developed to examine associations between each tooth movement and patient or dental factors.

Results

A statistical significance in the degree of tipping of teeth both mesial and distal to the extraction site was detected between the subject and control groups. There was also a significant difference in rotation of the tooth mesial to the site. Four generalised linear models were produced of the types of non-vertical movements found in teeth associated with sites of tooth loss.

Conclusions

Teeth adjacent to the site of tooth loss may undergo non-vertical movements. Teeth mesial to the extraction site had a tendency to tip distally. The degree of tipping was increased in upper teeth and in subjects with a cusp-to-cusp buccal occlusion. Rotation of teeth mesial to the extraction site was more prevalent in the lower arch. Tipping of the tooth distal to the extraction site could be extreme and was found to be more prevalent in subjects with a reduced (Code 1) overbite and in the lower arch. Rotation of teeth distal to the extraction site was greater in the upper arch and was also associated with a reduced (Code 1) overbite. It also had an association with rotation of the tooth mesial to the extraction site. Models of non-vertical movement are likely to be of limited value due to overdispersion, indicating a high degree of variability within the model.

Journal of Prosthodontics 2007; 16 (6): 495-501.

Surgical treatment of peri-implantitis using a bone substitute with or without a resorbable membrane: a prospective cohort study

Roos-Jansåker, A.M., Renvert, H., Lindahl, C., Renvert, S.

Objective

The aim of this prospective cohort study was to compare two regenerative surgical treatment modalities for peri-implantitis.

Material and methods

A group of 36 patients having a minimum of one osseointegrated implant, with a progressive loss of bone amounting to ≥ 3 threads (1.8mm) following the first year of healing, combined with bleeding and/or pus on probing, were involved in this study. The patients were assigned to two different treatment strategies. After surgical exposure of the defect, granulosomatous tissue was removed and the infected implant surface was treated using 3% hydrogen peroxide. The bone defects were filled with a bone substitute (Algipore). In 17 patients (Group 1), a resorbable membrane (Ossequest) was placed over the grafted defect before suturing. In 19 patients (Group 2), the graft was used alone.

Results

One-year follow-up demonstrated clinical and radiographic improvements. Probing depths were reduced by 2.9mm in Group 1 and by 3.4mm in Group 2. Defect fill amounted to 1.5 and 1.4mm, respectively. There was no significant difference between the groups.

Conclusion

It is possible to treat peri-implant defects with a bone substitute, with or without a resorbable membrane.

Journal of Clinical Periodontology 2007; 34 (7): 625-632.

Efficacy of panoramic radiographs in the preoperative planning of posterior mandibular implants: a prospective clinical study of 1,527 consecutively treated patients

Vazquez, L., Saulacic, N., Belsler, U., Bernard, J.P.

Objective

Various imaging techniques, including conventional radiography and computed tomography, are proposed to localise the mandibular canal prior to implant surgery. The aim of this study was to determine the incidence of altered mental nerve sensation after implant placement in the posterior segment of the mandible when a panoramic radiograph is the only preoperative imaging technique used.

Materials and methods

The study included 1,527 partially and totally edentulous patients who had consecutively received 2,584 implants in the posterior segment of the mandible. Preoperative bone height was evaluated from the top of the alveolar crest to the superior border of the mandibular canal on a

standard panoramic radiograph. A graduated implant scale from the implant manufacturer was used and 2mm were subtracted as a safety margin to determine the length of the implant to be inserted.

Results

No permanent sensory disturbances of the inferior alveolar nerve were observed. There were two cases of postoperative paraesthesia, representing 2/2,584 (0.08%) of implants inserted in the posterior segment of the mandible or 2/1,527 (0.13%) of patients. These sensory disturbances were minor, lasted for three and six weeks, and resolved spontaneously.

Conclusions

Panoramic examination can be considered a safe preoperative evaluation procedure for routine posterior mandibular implant placement. Panoramic radiography is a quick, simple, low cost and low dose presurgical diagnostic tool. When a safety margin of at least 2mm above the mandibular canal is respected, panoramic radiography appears to be sufficient to evaluate available bone height prior to insertion of posterior mandibular implants; cross-sectional imaging techniques may not be necessary.

Clinical Oral Implants Research 2008; 19 (1): 81-85.

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Radiation safety of the patient

JOHN UPTON summarises the legal responsibilities that dentists need to be aware of regarding Statutory Instrument (S.I.) 478, which covers radiation protection of the patient.



X-ray: while dose limits for the patient are not specified, there is a requirement that all exposures must be kept as low as is reasonably achievable consistent with obtaining the required diagnostic information.

Most dental practitioners will be aware that their x-ray equipment must be licensed by the Radiological Protection Institute of Ireland (RPII), and that the practice is subject to certain licence conditions for the protection of workers and the general public. They may be less familiar with a completely separate set of regulations dealing with radiation protection of the patient, as set out in S.I. 478 of 2002. Structures for the enforcement of these regulations are currently under consideration by the HSE, and some of the potential implications for Irish dental practices are considered here.

What is S.I. 478?

Council Directive 97/43/Euratom of June 30, 1997 (also known as the Medical Exposures Directive), which deals with the health protection of individuals against the dangers of ionising radiation in relation to medical exposure, was implemented in Irish law as S.I. 478 of 2002. The complete text is available via links from several websites, which are also a source of additional useful information on this topic

(www.medicalphysics.ie; www.medicalcouncil.ie; www.radiology.ie). While there is no clear system of categorisation, the regulations can be broadly considered under three headings: those relating to justification of medical exposures; those relating to optimisation of medical exposures; and, those concerned with implementation and enforcement.

Justification measures

Justification begins with the persons who request and authorise medical exposures. The “prescriber” is defined in the regulations as a person who is entitled to request a medical exposure. Only a registered medical or dental practitioner may act as a prescriber. The regulations also require that prescriptions must be in writing, and must specify the reason for requesting the particular procedure. The “practitioner” is a person who can authorise and take clinical responsibility for a medical exposure. The practitioner must be a registered dental practitioner or a radiologist.

The practitioner and the prescriber must be satisfied that the examination is clinically justified, and must consult previous relevant diagnostic information (where available) to ensure that the requested examination is necessary, and all referrals must be in accordance with a set of written referral criteria as specified by the "practitioner in charge".

There are a number of regulations dealing with justification of exposures where a patient is or may be pregnant. There are also regulations restricting exposures on medicolegal grounds, for health screening programmes, occupational health surveillance, and research.

Optimisation measures

In dental radiography, optimisation measures are those that maximise the amount of diagnostic information obtained, while minimising the radiation dose to the patient. While dose limits for the patient are not specified, there is a requirement that all exposures must be kept as low as is reasonably achievable consistent with obtaining the required diagnostic information. Also, the Dental Council is required to establish diagnostic reference levels (DRLs), which are expected not to be exceeded for specific procedures.

The regulations specify that medical exposures may only be

performed by a practitioner (i.e., a registered dentist) or a radiographer. While the practitioner can delegate practical aspects of the exposure to another suitably qualified person under S.I. 478, this is limited to circumstances where there is a radiographer present. While this reflects standard practice in hospitals, it is clearly an anomaly as regards dental practice. This issue was addressed in S.I. 303 of 2007, which, among other amendments, makes an exception to this regulation for dental practices.

A named medical physicist must be assigned to the practice to advise on optimisation, patient dose, quality assurance, etc. X-ray equipment must be tested by the medical physicist on installation, following major maintenance, and on a regular basis. Written protocols and quality assurance programmes to prevent accidental exposures must also be established.

The practice is also required to maintain a written inventory of all equipment, which includes specific information such as inspection and maintenance dates, as well as the projected date of replacement. A decision may be made to continue use of the equipment following the replacement date. This is subject to consultation with the medical physicist, and the approval of a national radiation safety committee, which is to be set up by the HSE.

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Implementation and enforcement measures

The regulations place considerable responsibility on the CEO of the HSE in relation to all holders of irradiating apparatus, both public and private. These include maintenance of a register of all radiological installations in the State, the establishment of structures to facilitate clinical audit, and the appointment of a national radiation safety committee to advise on, and issue guidance pertaining to, the safety of all radiological installations. It is important to note that the RPII does not have a role in the implementation or enforcement of S.I. 478.

The regulations also place considerable responsibilities on the Dental Council (and the Medical Council) in preparing criteria, protocols and guidelines. These include criteria for clinical audit, written protocols for standard radiological procedures, guidance on occupational health surveillance and medical research, approval of training, DRLs, guidelines in relation to exposure of helpers, and medical exposures in cases of pregnancy, etc.

It is understood that the HSE is in the process of establishing the national radiation safety committee, and that it is to be called the Medical Exposures Radiation Committee (or MERC). It is understood that the Health Information and Quality Authority (HIQA) may also have a future role in establishing standards, and in the clinical audit process.

In the spring of 2007, a task force was formed by the HSE to make recommendations on the implementation of S.I. 478 (and S.I. 303). The regulations require that all holders must ensure that their clinical practice is audited at least once every five years, based on criteria to be adopted by the Dental Council. One of the functions of the task force was, therefore, to conduct a formal baseline clinical audit of current practice in medical ionising radiation protection. This consists

of a questionnaire, which was recently issued to hospitals and medical practices using ionising radiation. It is expected that a similar questionnaire for dental practices is imminent. The medical questionnaire can be viewed on the HSE website to give an indication of the type of information requested (www.hse.ie/en/radiation).

Conclusions

While many of the formal structures relating to implementation of S.I. 478 are still under development, and there is a general lack of clear guidance as yet, there are many issues arising from the regulations that can be addressed by dentists in advance of clinical audit and enforcement:

- a "practitioner in charge" should be nominated to compile written referral criteria. These could be a simple list of the clinical indications used for specific x-ray procedures, or they could be based on published criteria such as the FGDP (UK) Selection Criteria for Dental Radiography, or the European guidelines on radiation protection in dental radiography (RP136);
- in dental practice, the dentist assumes the role of both the prescriber and the practitioner. However, it is important that some written record is kept demonstrating that the procedure was clinically indicated/justified. Also, where the practice accepts referrals from other practices (e.g., for OPG procedures), it should only be on the basis of a written prescription from a dentist, giving full clinical details. There should be easy access to a patient's previous films and reports to avoid unnecessary repeat exposures;
- a medical physicist should be formally appointed. While most practices will by now have appointed a radiation protection adviser (RPA) under the conditions of their RPII licence, it is important to note that the medical physicist required under S.I. 478 has a separate and distinct role;
- requirements for testing of equipment on installation, and routinely, are likely to be fulfilled under similar RPII licence conditions. However, there is an additional requirement to have equipment tested following major maintenance (e.g., tube replacement);
- a formal inventory of x-ray equipment must be maintained, which includes records of installation date, maintenance and inspection dates, and a projected replacement date. The typical life of a piece of electro-medical equipment is 8-10 years, depending on workload, etc; and,
- written protocols are required for radiographic procedures and QA, to prevent accidental exposures. Radiation safety procedures adopted as a condition of the RPII licence may partially fulfill this requirement.

John Upton MSc is Principal Physicist and Radiation Protection Adviser with HSE South, based at Waterford Regional Hospital.

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February 21 *Hilton Hotel, Charlemont Place, Dublin 2*
Guest speaker will be Senator David Norris, and the evening commences at 8.00pm. The retired dentists' dinner will take place at 6.00pm in the Hilton Hotel.

Metropolitan Branch, Irish Dental Association – 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

South Eastern Branch, Irish Dental Association – Annual Scientific Meeting

March 7 *River Court Hotel, Kilkenny*
Speakers include Professor Brian O'Connell, Professor Callum Youngson, Dr Naomi Richardson, Mr Glenn McEvoy and Dr Rory O'Neill. Further details will follow when available.

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, Irish Dental Association – Scientific Meeting

March 11 *Clarion Hotel (Formerly Ryan's), Ennis Road, Limerick*
Meeting will commence at 7.45pm. The guest speaker is Professor Chris Wright and the topic is 'Use of IV sedation, RA sedation/oral sedation in general practice'.

Metropolitan Branch, Irish Dental Association – Annual General Meeting 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*
Speaker to be confirmed.

Metropolitan Branch, Irish Dental Association – 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: 01 295 0072.

May 2008

30th Asia Pacific Dental Congress – 'The Power of Multi-Disciplinary Approach for Clinical Excellence'

May 6-10 *Bangkok Convention Center at Central World, Bangkok, Thailand*

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 the speakers include Professor Svante Twetman, Denmark. For further information contact crowleyevelyn@eircom.net.

Joint Annual Conference of the Oral Health Promotion Research Group UK and the Irish Link

May 15-16 *Croke Park Conference Centre, Dublin*
Topic is 'Partnership working'. For further information, contact Mary Carr, Email: mary.carr@maile.hse.ie.

FT108 – Future Trends in Implantology, International Dental Conference

May 15-17 *InterContinental Hotel, Berlin, Germany*
For further information on this conference contact www.paragon-conventions.com/fti08.

Irish Dental Association – Lyttle Cup Golf Outing

May 16 *Royal County Down Golf Club*

First World Health Professions Conference on Regulation (WHPER) – The Role and Future of Health Professions Regulation

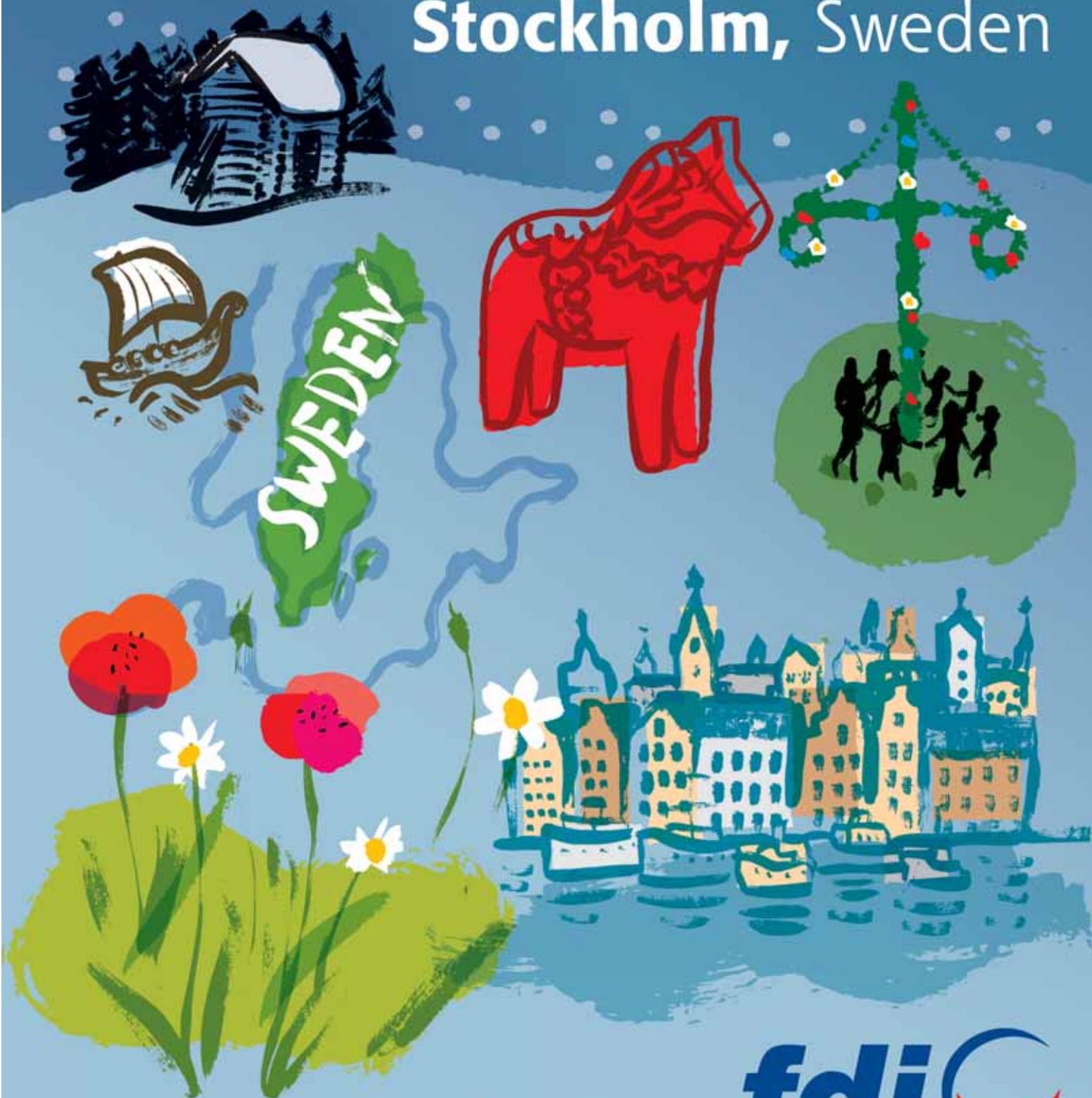
May 17-18 *Centre Internationale de Confence de Gene (CICG), Geneva, Switzerland*
Hosted by the World Health Professions Alliance in co-operation with the World Confederation for Physical Therapy, the Conference on Regulation will bring together leaders in health professions regulation to discuss: 1. different models of health professional regulation; 2. regulatory body governance and performance; and, 3. trade in services and implications for regulation. For more details, visit the website – www.whpa.org/events.htm.

September 2008

FDI Annual World Dental Congress

September 24-27 *Stockholm, Sweden*
The FDI Annual World Dental Congress, including the World Dental Parliament, the Scientific Programme and the World Dental Exhibition, will be held in Stockholm. For further information, go to <http://www.fdiworldental.org/microsites/Stockholm/congress1.html>.

FDI Annual World Dental Congress 24–27 September 2008 Stockholm, Sweden



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