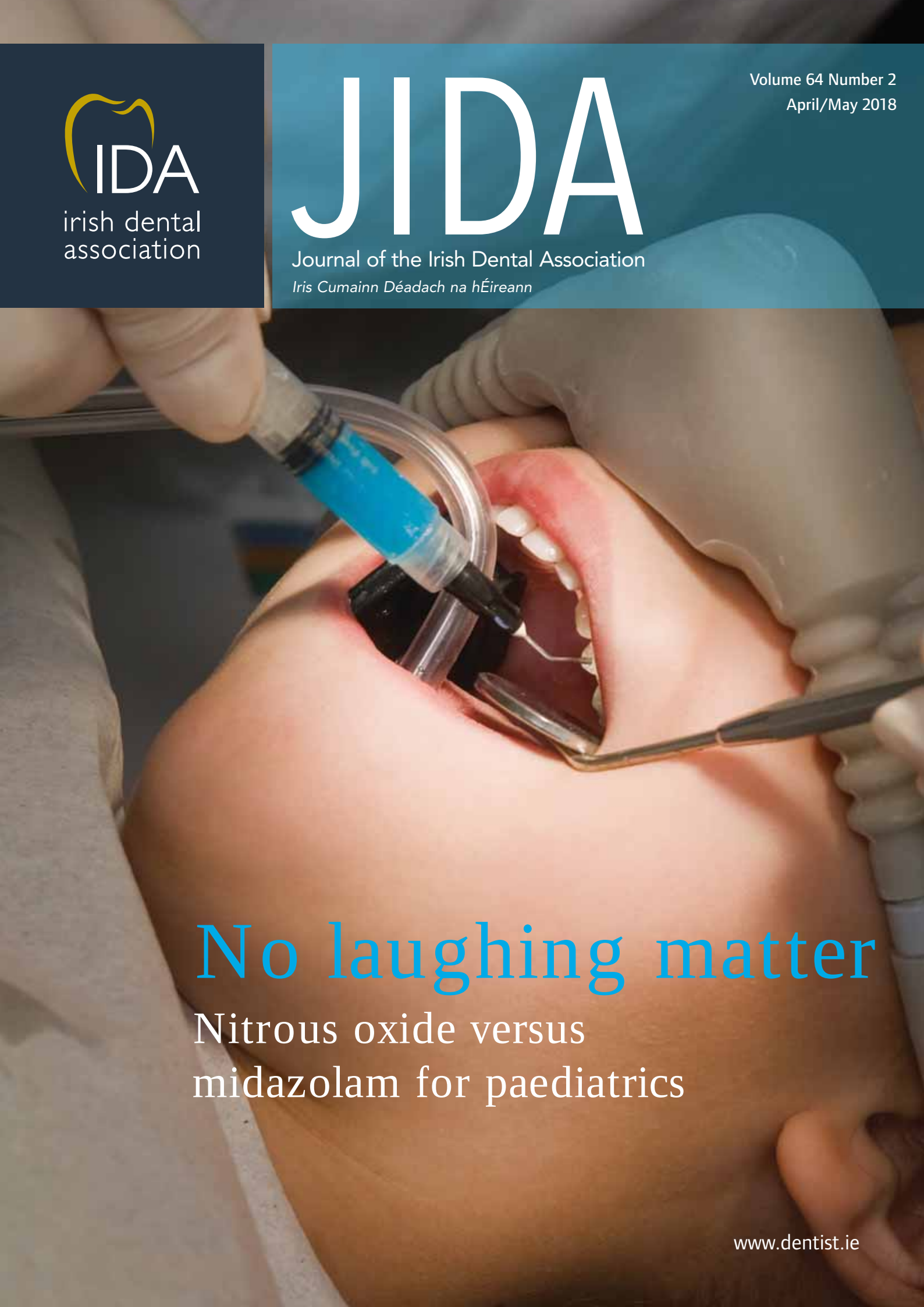
IDA
irish dental association

JIDA
Journal of the Irish Dental Association
Iris Cumainn Déadach na hÉireann

Volume 64 Number 2
April/May 2018



No laughing matter

Nitrous oxide versus midazolam for paediatrics

www.dentist.ie

Visit us on
Stand S5
IDA irish dental association Conference 2018

NEW

Moisture levels vary. Our bond won't.

Prime&Bond active™
Universal Adhesive

Variations in moisture level can be difficult to detect, especially in the depths of a class II proximal box. Thanks to the new, patented Active-Guard™ Technology, Prime&Bond active adhesive provides reliable performance on over-wet and over-dried dentin, taking out some of the guess work and resulting in virtually no post-operative sensitivity*.

For more information visit www.dentsplysirona.com/pbactiveuk

THE DENTAL SOLUTIONS COMPANY™

Dentsply Sirona

Published on behalf of the IDA by Think Media, 537 NCR, Dublin 1
T: +353 1 856 1166 www.thinkmedia.ie

MANAGING EDITOR **Ann-Marie Hardiman** ann-marie@thinkmedia.ie
EDITORIAL **Colm Quinn** colm@thinkmedia.ie
ADVERTISING **Paul O'Grady** paul@thinkmedia.ie
DESIGN/LAYOUT **Tony Byrne, Tom Cullen, Niamh Short**

Circulation 1.1.17 – 31.12.17: 3,574 average copies per issue.
Audit issue October-November 2017: **3,949 copies**
Registered dentists in the Republic of Ireland and Northern Ireland.

Irish Dental Association Unit 2 Leopardstown Office Park, Sandyford, Dublin 18.
Tel: +353 1 295 0072 Fax: +353 1 295 0092 www.dentist.ie
Follow us on Facebook (Irish Dental Association) and Twitter (@IrishDentists).

Colgate® Duraphat® FLUORIDE TOOTHPASTE

THE BRAND YOUR PATIENTS KNOW AND TRUST*

More effective caries prevention than a regular fluoride toothpaste

Colgate® Duraphat® Toothpaste is clinically proven to deliver a **76%** reversal in root carious lesions[1,†]

Name of the medicinal product: Duraphat® 5000 ppm Fluoride Toothpaste. **Active ingredient:** Sodium Fluoride 1.1%w/w (5000 ppm F⁻). **Indications:** For the prevention of dental caries in adolescents and adults, particularly amongst patients at risk from multiple caries (coronal and/or root caries). **Dosage and administration:** Brush carefully on a daily basis applying a 2cm ribbon onto the toothbrush for each brushing. 3 times daily, after each meal. **Contraindications:** This medicinal product must not be used in cases of hypersensitivity to the active substance or to any of the excipients. **Special warnings and precautions for use:** An increased number of potential fluoride sources may lead to fluorosis. Before using fluoride medicines such as Duraphat®, an assessment of overall fluoride intake (i.e. drinking water, fluoridated salt, other fluoride medicines - tablets, drops, gum or toothpaste) should be done. Fluoride tablets, drops, chewing gum, gels or varnishes and fluoridated water or salt should be avoided during use of Duraphat® Toothpaste. When carrying out overall calculations of the recommended fluoride ion intake, which is 0.05mg/kg per day from all sources, not exceeding 1mg per day, allowance must be made for possible ingestion of toothpaste (each tube of Duraphat® 500mg/100g Toothpaste contains 255mg of fluoride ions). This product contains Sodium Benzoate. Sodium Benzoate is a mild irritant to the skin, eyes and mucous membrane. **Undesirable effects:** Gastrointestinal disorders: Frequency not known (cannot be estimated from the available data): burning oral sensation. Immune system disorders: Rare (≥1/10,000 to <1/1,000): Hypersensitivity reactions. **Legal classification:** POM. **Marketing authorisation number:** PL00049/0050. **Marketing authorisation holder:** Colgate-Palmolive (U.K.) Ltd. Guildford Business Park, Midleton Road, Guildford, Surrey, GU2 8JZ. **Recommended retail price:** €9.36 (51g tube). **Date of revision of text:** April 2015.

References: 1. Baysan A et al. Reversal of Primary Root Caries Using Dentifrices Containing 5,000 and 1,100 ppm Fluoride. Caries Res 2001;35:41-46. † After 6 months use. *YouGov Omnibus for Colgate UK, June 2015. Claim applies to the Colgate® brand.

www.colgateprofessional.ie www.colgatetalks.com

Colgate®

Prof. Leo F. A. Stassen
Honorary Editor

Conference content is compelling

The Annual Conference dominates the immediate horizon, and we have reason to be grateful to our fellow dentists who contribute to the profession in various ways.

This edition brings us to the Annual Conference. The Association works very hard to be able to bring together such a variety of dental knowledge and skill sets in one venue every year. This year, we are looking forward to hearing, among others, Prof. Trevor Burke on Minamata; and Dr Hannah Shields who is interviewed in this edition, on her adventures climbing Mount Everest and skiing to the North Pole. The Pre-Conference Workshops should be invaluable to all in attendance with posterior composites, implant overdentures and endodontics all featuring. There is a preview of the Conference in this edition.

In the light of the current issues with claims and the meetings being held by the Joint Consultative Group, the GP Meeting at the Conference (being styled as a 'town hall' meeting) is also likely to be a very important event in its own right. Add in the Association and Union Annual General Meetings and once again, the reasons are compelling for attending the single biggest event for dentists in Ireland every year. I encourage all readers who haven't already booked to do so now.

Sedation for children

Our peer-reviewed paper in this edition asks the question: is it reasonable to effectively exclude midazolam-based sedation for children undergoing dental treatment? Additionally, the paper reviews the evidence on whether midazolam-based sedation is as safe and effective as nitrous oxide sedation for children having such treatment. Drs Miriam Bourke and Caoimhin Mac Giolla Phadraig conclude that both types of sedation can safely help children receive dental care but as research is sparse, there is a need for future research in this area.

Dr Bernice McLaughlin sets out the minutiae of Minamata in a very helpful way in our practice management section. The essential point here is that significant changes will come into effect within the next 12 months regarding the use of dental amalgam. As Dr McLaughlin states: "…this will have major implications for dentistry". Read this article and then attend Prof. Trevor Burke's lecture on the subject in Galway to get an understanding of what is about to happen.

We are grateful too to Dr Ed O'Reilly (photographed above) for sharing the practicalities of his experience of moving to digital dentistry. It is helpful to the profession to have dentists set out clearly how they think the benefits of (and issues arising with) new technology may impact on both practitioners and patients.

Membership

The Annual Conference also marks the end of the term of office for our President, Dr Robin Foyle. On behalf of the members, it is appropriate to thank him for his selfless contribution to the improvement of the terms and conditions under which members operate. Improvements are hard won and require an enormous team effort. The Association, through the many dentists who contribute to it constantly, continues to work hard for such improvements – wherever they can be gained. Just one example is the better benefits for both patients and dentists in the revamped PRSI-based Dental Treatment Benefit Scheme. The work of the GP Committee was central to that outcome. In the 'My IDA' column, the *Journal* has featured members who are making contributions to the Association in varied ways. In this edition, we gain an insight into the busy life of Dr Jennifer Collins who is making her contribution through the GP Committee. We are only as strong as our membership and it is a happy note that the Association is at a record number of members. I look forward to seeing as many of you as possible in Galway.

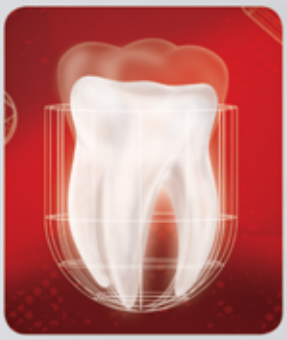
Biodentine™

ACTIVE BIOSILICATE TECHNOLOGY

BioRoot™ RCS

OVER 170 PUBLICATIONS WORLDWIDE

Dentine Restoration



Biodentine™

Dentine restoration from the crown to the root

Biodentine™ allows you to maintain pulp vitality in deep cavities and pulp exposures.

Endodontics

BioRoot™ RCS

The paradigm shift in root canal filling

BioRoot™ RCS brings you a superior seal without requiring the use of a complex warm gutta technique.

Download the Septodont App for product information, case studies, CPD, lecture bookings and more - all at your fingertips

septodont

Please visit our website for more information

www.septodont.ie or call Gerry Lavery on: +44 (0)1622 695520/+44 (0)7836 255274

Dr Robin Foyle
IDA President

Facing our challenges together

The profession faces significant challenges, but the Association and Union are working hard to overcome them.

It has been a huge honour to serve as IDA President. Those that went before me inspired the desire to bring the profession forward and represent it on a local, national and international basis.

Competition Act

It goes without saying we face many challenges. In my view, strict competition law has severely restricted the IDA's ability to represent the interests of our members and patients. Competition law is very important to prevent businesses price fixing and, when used for that purpose, none of us can have any argument with it. However, our Government uses this to prevent collective protest on inadequate State schemes that do not serve our patients well. The fact that the patients affected are the poorest in society makes it even more shameful.

Unity

Given these challenges, unity among the profession has never been more important. I understand that some members (and non-members) wish we could be more forceful and tell the profession how to protest, etc. I often hear the criticism that the IDA is "doing nothing". I can assure you that this is not true. Our biggest problem in the IDA is a lack of volunteers for our committees. That can often be because dentists are busy or don't know how to volunteer, but a call or email to Fintan Hourihan, Elaine Hughes or another committee member is all that's needed.

State schemes

Much credit must go to our GP Committee for their contribution to an extended Dental Treatment Benefit Scheme (DTBS). No doubt there have been problems, in particular with elements of the online claiming system, but for the most part it has been positive. The Dental Treatment Service Scheme (DTSS) is another matter. At the time of writing, the Primary Care Reimbursement Service has added insult to injury with the issue of 400 letters to contractors regarding surgical extraction claims. I have spoken to many of these contractors who feel a real sense of grievance, given the very hard work they do for their patients under very difficult circumstances for very little in return. Let me assure you that the IDA will continue to fight this battle and represent members who require it. I know there are many with strong views and I would ask some of them to perhaps consider joining the GP Committee.

Governance

The governance of an organisation such as ours is of paramount importance. Dr PJ Byrne prioritised this in his presidency and the work has continued this year. I would like to thank all those who poured many hours into this huge task.

Board, Council and Committees

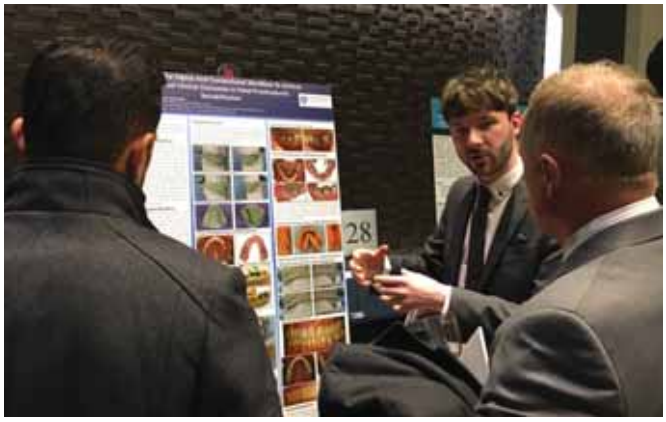
I would like to pay tribute to my predecessor Dr PJ Byrne, who has been so generous with his time to advise me, both before taking on the role and while President. I also had the privilege of working with a terrific Board of Directors. The Board has a unity and intelligence that made the job so much easier.

The Council of IDU that I chaired made a really meaningful contribution to the functioning of the Union. This year we co-opted Drs Dina Dabic and Rebecca Gavin to help reflect the diversity of the profession. Dina and Rebecca worked hard all year, representing the interests of dentists that graduated outside Ireland and those who graduated in the last few years. They have recently completed a survey of this section of the profession, which is being discussed at Council. I would like to thank them and all Council members for their dedication to making the profession better for everyone.

Thanks

I would especially like to thank everybody who works at IDA House. The support and expertise that they provide to me and the Board and Council is invaluable. I cannot emphasise enough that we are very fortunate to have the team we have. While it is unfair to single out individuals, I would especially like to thank Fintan Hourihan and Elaine Hughes for their availability to me and support over the past two years. Finally, I would like to wish my successor Dr Kieran O'Connor every success in his year as President. I have come to know Kieran very well over the past year and I know he will take the Association forward with enthusiasm and commitment.

Representing Irish dentistry in Chicago



Prosthodontics resident at Dublin Dental University Hospital Dr David McReynolds recently presented a poster entitled 'Combining the Digital and Conventional Workflow to Achieve Optimized Clinical Outcomes in Fixed Prosthodontic Rehabilitation' at the American Academy of Fixed Prosthodontics 67th Annual Scientific Session in Chicago, Illinois.

New book highlights caries in children

Early childhood caries (ECC) is a global epidemic, as outlined in the recently published *A Compendium on Oral Health of Children* (2017, Nova Biomedical NY). The book contains data from 40 of the 193 UN-listed nations and includes a chapter on Ireland prepared by Drs Anne O'Connell and Mairead Harding.

Drs O'Connell and Harding prepared their chapter after reviewing data from all sources, including preliminary data from UCC's FACCT study and the Growing Up in Ireland study. The deficiencies in data and service provision for young children were evident; there was very little data on toddlers and limited data on five year olds.

The review highlighted the fact that data on utilisation of both public and private dental services is not readily available and not published regularly. Oral health promotion and prevention was not included in the free medical scheme for children (0-6 years) introduced in 2015. Limited data suggests that over 60% of five-year-olds have never attended a dentist and only 69% of five-year-olds are free from visible caries. Extensive decay was present in some children, and the 2016 cost analysis of the 'extraction only' general anaesthetic service was €1,150 per child. Early access to dental prevention has reduced risk for children with special healthcare needs in Ireland. Snacking between meals is a risk factor, as well as socioeconomic disadvantage.

Studies across the world emphasise early identification of children at risk and early equitable access to prevention and management of dental caries. It is time for the profession and the health service to act together and promote education and prevention to parents of young children to reduce the risk of this preventable disease. Oral health needs to be included within general health surveillance of children as previously proposed in Best Health for Children Revisited (2005), and pre-school children need to be included in a long overdue national survey on oral health.

Hundreds of dentists sign up for online claim system

Representatives from the HSE's Dental Team were on hand at the Irish Dental Association's recent Practice Management Seminar to talk about the HSE's new online dental claiming system.

This new online system was developed in collaboration with dentists, working with the HSE's Primary Care Reimbursement Service (PCRS), to improve the administration of the Dental Treatment Services Scheme (DTSS).

Assistant National Director Anne Marie Hoey, speaking at the Seminar, said: "Our new online claim system allows DTSS contractors to submit dental claims online. Prior to the online system, dentists submitted their claims for payment each month on paper. These claims were then manually processed by staff in the PCRS. As well as earlier access to payments, the new online system offers dentists easy access to comprehensive reports and faster search and retrieval. So far hundreds of DTSS dentists have signed up for the online claims system".

Head of Operations at the PCRS, Carmel Burke, said: "We were delighted to work with dentists to make improvements to our administration systems. This is the first phase of an improvement journey over the coming 18 months. The second phase, currently in development, will deliver the ability for dentists to apply online for prior approval from their Principal Dental Surgeon, which will improve turnaround time for approval with patients receiving treatment in a more timely fashion".

Representing the HSE at the Irish Dental Association Seminar were (from left): Carmel Burke; Carolyn McMahon; Paul McCartney; Tanya Nolan; and, Brian Timmons.

Anne Marie Hoey, HSE Asst National Director (centre), and Carmel Burke, Head of Operations at the HSE PCRS, who presented together at the IDA's Annual Practice Management Seminar, with Dr Brian Duggan, dentist and proof of concept participant.

The DTSS is a means-tested scheme operated by the HSE. Dentists contracted under the scheme provide certain treatments to patients, aged over 16, who hold medical cards. Currently, there are over 1.27 million adults eligible for treatment under the scheme. The PCRS manages the payments to dentists. In 2017, over 1.2 million treatments were provided to 413,128 eligible patients by 1,418 private contractors participating in the scheme. Call the HSE's Dental Team on 01-891 5756, or email dtss.queries@hse.ie to find out more.

IDA MEMBERS – NEWSWEAVER

If you are a member of the IDA and you are not receiving email circulars from IDA House you may have **unsubscribed in error**. This can occur if you press unsubscribe or forward the email to another person who may unsubscribe you in error. If you wish to re-subscribe to receive our circulars, please email employment@irishdentalassoc.ie giving written consent to receiving our updates.

IMPORTANT NOTICE

Dear Editor

The February/March 2018 edition of the *Journal of the Irish Dental Association* shows a photograph of a patient being treated without protective glasses on its front cover. In 2018 all dentists are required to give their patients protective glasses to avoid any unnecessary eye injuries and it is important that we follow that motto.

Congratulations on the *Journal*, I found it very informative and well done on a fine publication.

I would also like to highlight that most dentists should be using self-aspirating dental syringes, many of which are indeed disposable.

I appreciate that the publishers use stock photographs but patients not wearing glasses during dental treatment, and dentists using non-aspirating syringes are not what we should be promoting.

I have raised this issue previously with the publishers.

Dr Declan Corcoran

Response from the Editor

Dear Declan

Thank you for your letter to the Editor. The content of your letter has my complete support.

Please accept my apologies on behalf of the *Journal*. I will do my best as Editor to ensure it doesn't happen again.

It will be an agenda item at our next Editorial Board meeting to make sure everybody is aware of this issue

Prof. Leo F.A. Stassen FRCS (Ed) FDSRCS MA FTCD FFSEM FFDRCSI FICD
Professor of Oral & Maxillofacial Surgery TCD
Editor, *Journal of the Irish Dental Association*

Diary of events

APRIL

24 **North Munster Branch, IDA – Meeting**

26-28 **IDA Annual Conference 2018** *The Galmont Hotel, Galway*
Full preview begins on page 65.

MAY

10 **Irish Society of Dentistry for Children Annual Scientific Meeting**
Midlands Park Hotel, Portlaoise, Co. Laois

19 **IDA Compliance Workshop** 10am - 3pm *Sheraton Hotel, Athlone*
An inspector calls. Are you ready? See details on right.

JUNE

7-8 **ISDH Conference** *Adare, Co. Limerick*

20-23 **EuroPerio9** *Amsterdam*
For more info, log on to http://www.efp.org/europerio/

OCTOBER

11-12 **IDA HSE Dental Surgeons Seminar** *Midlands Park Hotel, Portlaoise*

12 **IDA Munster Branch – Annual Scientific Meeting**
Save the date – further details to follow

An inspector calls. Are you ready?

The IDA will hold a day-long workshop on regulatory compliance for dentists on May 19 at the Sheraton Hotel, Athlone.

The workshop will focus on achieving compliance with regulatory bodies' inspections and prepare the dental practitioner for the inspector's knock on the practice door. Sessions will cover key areas such as: clinical audit, oral radiology (new guidelines); Minamata (amalgam); employment law; and, the GDPR. Regulatory bodies such as the EPA (formerly RPII), the HSA, HSE, HIQA, NERA (National Employment Rights Authority) and local authorities may inspect dental premises, resulting in a serious impact on business productivity. Delegates will be advised as to what an inspector may request and how the compliant practitioner should respond.

The workshop, which will commence at 10.00am and finish at 3.00pm, is strictly for dentists, and is an IDA members' only event. Speakers will include:

- Dr Eamon Croke: Minamata;
- Dr Jane Renehan: Clinical Audit;
- Hugh Sinnott, EPA: radiation licensing;
- Dr Andrew Bolas: new HIQA guidelines, oral radiology;
- a representative from DAC Beachcroft: employment law; and,
- a speaker on GDPR.

Don't get left behind. Make sure your dental practice is compliant. Cost: €250. Full programme to follow. Part II of this workshop will take place on Saturday, September 15.

New regulations will allow practice inspections

Dr Jane Renehan of Dental Compliance Ltd says that new primary legislation is expected to be signed off by Government within a matter of weeks to transpose the EU Council Directive 2013/59/EURATOM into Irish legislation. Once this becomes law there will be a significant change in how ionising radiation is regulated. Currently, responsibility rests with the Environmental Protection Agency (EPA) and Department of Health working with the HSE and Dental Council, with only the EPA having powers of inspection and enforcement.

"When the new legislation is enacted, the Health Information and Quality Authority (HIQA) will replace the Department of Health (HSE and Dental Council) as the Competent Authority with responsibility for medical exposures. The significant change for dental practitioners will be that HIQA will have powers to carry out announced and unannounced practice inspections, along with powers of enforcement. It is not yet clear whether HIQA intends publishing inspection reports on its website, as is its current practice for each sector where it has powers of inspection," Dr Renehan told the *Journal*.

Expected changes in the legislation will see a move away from the licensing of x-ray units by the EPA towards an authorisation process, which will be a self-certified declaration process by the practitioner. The EPA will retain its powers of inspection and enforcement for matters relating to employees and the public.

QUIZ QUESTIONS

Submitted by Dr Conor O'Meara.

A 15-year-old male attends the surgery following a fall from his bicycle. The mandibular incisors are displaced lingually and the entire segment moves as a unit. No teeth have been avulsed.

1. What is your diagnosis?
2. What treatment should be carried out?
3. What instructions should be provided to the patient?
4. What should your follow-up protocol be?

Answers on page 96

PLAQUE CONTROL: 'GOOD' CAN BE BETTER

THE PROVEN ORAL CARE COMBINATION

A combined analysis of 29 clinical studies on essential oils has been published in the *Journal of the American Dental Association.*

This showed that after 6 months of using **LISTERINE®**, after brushing and inter-dental cleaning, **37%** of patients had at least half their mouth free from plaque, compared with only **5.5%** of those who just brushed and used inter-dental cleaning.[1]

LISTERINE® contains a unique anti-plaque agent, 4 powerful essential oils. These penetrate the plaque biofilm to kill **97%** of bacteria left behind after brushing.[2] For some patients 'good' can be better.

To see the full study visit http://jada.ada.org/article/S0002-8177(15)00336-0/abstract

Johnson & Johnson
FAMILY OF CONSUMER COMPANIES

www.listerineprofessional.co.uk

References
1. Araujo MW, et al. *J Am Dent Assoc* 2015;146:610–622.
2. Johnson & Johnson. Data on file.

BRING OUT THE BOLD™

TEKNO SURGICAL

REPRESENTING
GLOBAL BRAND LEADERS
IN **DENTAL**

ZEISS

ESCHMANN

ORASCOPTIC

A.R.C. LASER
enlighten your surgery

VISIT OUR STAND (S3) AT THE UPCOMING
IDA ANNUAL CONFERENCE

info@tekno-surgical.com

LinkedIn

Jump on in!

This year's Annual Conference 'Making a splash. New way. Old way. Galway' brings dental experts to the Atlantic coast to dive deep into the world of dentistry.

The IDA Annual Conference heads to an old venue with a new name, The Galmont Hotel (formerly the Radisson Hotel) in Galway from April 26-28 for three days of lecturing, networking and socialising.

The theme of this year's Conference is 'Making a splash. New way. Old way. Galway'. It will once again feature topics on the leading edge of dentistry, with the best of Irish speakers and those from around the world. Events kick off on the Thursday with the Pre-Conference Programme, before the main conference takes place on Friday and Saturday.

Pre-Conference Programme

Prof. Trevor Burke of the University of Birmingham will deliver his sold out hands-on course and lecture on successful posterior composites. It is essential that all practitioners hone their skills in this area as the implications from the Minamata Convention are just around the corner. The course will look at the theory of resin composite materials and potential issues.

Drs Eoin Fleetwood and Alastair Woods will present an implant overdentures workshop, examining the benefits and ease of use of locator style systems. Participants will learn how to perform pick-up impressions of attachment systems and chairside conversions of dentures to overdentures.

For those interested in endodontics, Drs Johanna Glennon and Paul McCabe's course will guide delegates on how to keep it simple and predictable. The lecturers will show those in attendance how to get the most from radiographs, completing isolation in difficult cases and keeping general practices root canal ready, among other topics.

Both dentists and hygienists will be able to benefit from Dr Phil Ower's lecture on the essentials of periodontics management for the dental team.

Conference programme

The lecture programme begins at 9.00am on Friday with two sessions running concurrently. For those who miss out on his course on Thursday, Prof. Trevor

CONFERENCE COMMITTEE

Dr Mairead Browne

Dr Peter Gannon

Dr Johanna Glennon

Dr Paul Murphy

Dr Judith Phelan

Elaine Hughes

Don't miss…

Friday, April 27

JOURNAL OF THE IDA LECTURE

Dr Hannah Shields

This talk is entitled 'Limits exist only in our minds'. Derry native Hannah has conquered Mount Everest, visited the North Pole and completed ultramarathons, so there is probably no one better to talk about overcoming limits. She will talk about the preparation needed for these enormous challenges. (Interview: page 75).

Burke will speak again on 'Life after Minamata'. Dr Phil Ower will also speak again, taking dentists through managing periodontics in practice.

Physiotherapist Eamonn Ó Muircheartaigh's talk will examine the ergonomics of dentistry, which is very important considering that two out of three dentists suffer from work-related pain.

The GP Meeting takes place at 1.00pm while Dr Emily Clarke will look at bone grafting and implants. Paediatric dentists and those with an interest in the area can learn about the Hall technique from Dr Eleanor McGovern. A Dental Protection risk credit is available for attendees of Dr Raj Rattan's lecture 'Clinical decision making – the risks and bias'.

Dr John Alonge will speak on minimally invasive exondontia and Dr Tom Barry will look at the treatment, side effects and dental-related complications of osteoporosis.

The two sessions will merge for the final two talks of the day. Firstly, Dr Harry Barry will address delegates on how to deal with anxiety and mental well-being. The day is capped off by the JIDA lecture from dentist and adventurer Dr Hannah Shields, whose talk is entitled 'Limits exist only in our minds'. She should know, having journeyed to the North Pole and being the first Northern Irish woman to climb Mount Everest.

It starts all over again at 10.00am on Saturday morning with a talk on digital dentistry from Dr Marty Jablow and an interactive presentation on differential diagnosis of oral lesions by Dr John Alonge.

Two Dental Protection risk credits are available on Saturday, with Ms Serpil Djemal delivering two lectures. In the first, she will give her tips for managing fractures and injuries and later in the afternoon, she will share her tricks in managing luxation injuries.

Hygienists and nurses

There will be special sessions for dental nurses and hygienists on the Saturday. A half-hour dental hygienists' workshop will run four times during the day and focus on periodontal maintenance around dental implants.

A full-day programme is in store for the nurses who attend the Conference (see below), with talks in the morning on digital dentistry, sharps injuries prevention and looking after the special needs patient. After lunch, there will be lectures on preparing for medical emergencies in a dental practice, using the Hall technique and new head of Dental Protection for Ireland, Dr Martin Foster will close things off.

10.00am – 11.00am
Digital dentistry: the basics on what you need to get started
Dr Marty Jablow

11.30am – 12.15pm
Sharps injuries prevention in the dental healthcare environment
Dr Mary O'Donnell

12.15pm – 1.00pm
Looking after the special needs patient
Dr Alison Dougall

2.00pm – 2.30pm
How to be prepared: medical emergencies in a dental practice
Helen Farrelly

2.30pm – 3.15pm
The Hall Technique
Dr Eleanor McGovern

3.15pm – 4.00pm
Dental Protection
Dr Martin Foster

New products from Tekno Surgical

Tekno Surgical has introduced EmunDo and the Fox 810 Laser to Ireland. The company believes that together, they are ideal for periodontics, perimplantitis and oral mucositis treatment, and professional tooth cleaning.

EmunDo therapy is a germicidal treatment. The company states it has a selective and localised effect, only accumulates at inflamed areas, stays during the entire treatment, does not stain, and can be washed out easily. Tekno Surgical states that it can be used in combination with the FOX 810 Laser and is antibacterial, gentle and selective.

According to the company, the FOX 810 Laser is also suitable for a range of additional practice applications such as surgery, endodontics, bleaching, desensitisation and conventional laser perio therapy.

morris
DENTAL COMPANY LIMITED

Morris Dental +353 (0) 1 621 5182 morrisdental.ie

Don't miss…

Prof. Trevor Burke

In one of three appearances at the conference, Trevor will look at life after Minamata. What will a replacement for amalgam be? What are the advantages and disadvantages of the two main alternatives – resin composite and glass ionomer?

Dr Catriona Ahern will discuss oral radiology and how we can protect our patients and ourselves. For those interested in temporomandibular disorders, Dr Eamon Murphy will be clarifying some of the issues. Meanwhile, in the other room, Dr Alison Dougall will discuss strategies for dealing with patients with neurological disorders.

The two programmes again merge for the final presentation of the day and of the Conference from Prof. Trevor Burke, as he looks at the pragmatic approach to the treatment of tooth wear.

Calling all dental students

Dental students from Cork or Dublin looking to make their mark on the Conference can do so on Friday if they compete for the Dr Tony Costello Medal. The Medal is awarded each year to the student/s who give the best table or poster demonstration of not more than 10 minutes on a subject applicable to general dental practice. The IDA offers a grant for each submission so it gives students a great opportunity to get their name known to the industry before they graduate.

The 2017 Costello Medal Award went to UCC dental students Li Ying Mah (left) and Eva Taaffe (right). They are pictured with Mrs Jacqueline Costello.

Dr Joe Moloney Award

Each year, delegates vote for the winner of the Dr Joe Moloney Award, which is awarded to the outstanding presenter/lecturer at the Conference. The Award is kindly sponsored by the Dental Health Foundation.

NATURE BORN • PHYSICIAN DEVELOPED • PATIENT PROVEN™

MOUTH KOTE®

Dry Mouth Spray

with Natural Yerba Santa & Xylitol

- Clinically proven to relieve dry mouth up to 4 times longer than traditional saliva substitutes
- Non-prescription; does not interfere with any medications or treatments
- Great lemon-lime taste; Sugar-free & alcohol-free
- Sweetened with xylitol, a natural sweetener which has been documented in the scientific literature to prevent tooth decay.
- Available in 2 fl. oz. & 8 fl. oz. spray bottles

PRETZ® SPRAY

Preservative-Free

- New Preservative-Free 20 ml size • Sterile • Not tested on animals
- Restores topical moisture to the mucosa naturally
- Ease-of-use via sterile spray application with no backflow
- Safe for children • Moistens and lubricates
- **Yerba Santa** *(aka holy herb, bearsweed or mountain balm)* grows in California & has safely been used for centuries as both a moisturizer and an expectorant.
- Also Available:

  Pretz Spray, 50 ml *(Pretz Classic)*

Available at wholesalers, pharmacies, and Amazon.com.

For FREE SAMPLES,
stop by our stand (number 8)
at the IDA Trade Show 2018
or call (01) 477 3433.
mailman@parnellpharm.com
www.parnellpharm.com

PARNELL PHARMACEUTICALS

Parnell Pharmaceuticals Limited, Regus House, Harcourt Road, Dublin 2, Ireland
T: (01) 477 3433 F: (01) 402 9587 www.parnellpharm.com

**Rhodus, N.L.: The Effectiveness of Artificial Salivas in Relieving Xerostomia as Assessed by Mucoprotective Relativity., J Dent Res 70:407, 1991. Abstract 1133.*

Social programme

As usual, the Conference is not only about lectures and courses delivered by top experts, there is also an extensive programme of social events for attendees to enjoy.

The President's golf competition will be held at the Galway Bay Golf Resort on the Thursday (anyone attending a pre-Conference Programme can play on the Wednesday). All delegates, accompanying persons and trade show exhibitors are welcome to play.

Later Thursday evening, the trade show opening party will be held directly following the AGM. Newly-elected President Kieran O'Connor will open the party and fun, music and drinks will be provided.

The 2018 Annual President's Dinner will take place on the Friday evening, with a drinks reception at 7.00pm, followed by a black-tie dinner and music. Tickets are €85 and all dental team members, trade members and friends are invited to enjoy the evening.

The traditional Past Presidents' lunch will be held in the Raw restaurant in The Galmont Hotel on Saturday at 1.00pm.

Don't miss…

Saturday April 28

Dr Marty Jablow

Marty has embraced digital dentistry and will share his insights of how to get started in the area. He believes it enhances patient experience and helps you ensure you deliver predictable, quality dentistry. Marty will explain how it improves efficiency and productivity and leaves a positive impression on patients.

Carestream DENTAL

CATTANI AIR TECHNOLOGY IRELAND

DMI

Visit DMI at the

IDA Annual Conference 2018

Stand G3 April 26th - 28th

DMI are delighted to be Gold Sponsors of the IDA Conference 2018. Visit us at Stand G3 where we will have all the latest dental innovations on display. We will have experts from leading manufacturers such as Carestream and Cattani on hand to answer any questions you may have on digital dentistry and the latest developments in the world of suction motors and compressors.

In addition to showcasing the latest additions from both Cattani and Carestream, we will also have lots of show specials across our vast range of equipment and consumables so make sure you drop by and see what is on offer.

Dublin: 1890 400 405 • Cork: 021 602 0544 • Lisburn: 028 9260 1000
Web: www.dmi.ie www.dmi.co.uk Email: info@dmi.ie

GOLD

G1 Colgate
G2 DMI
G4 GSK-Sensodyne

SILVER

S1 Coltene Ltd
S2 Dentawealth
S3 Tekno Surgical
S4 Pamex Ltd
S5 Dentsply Sirona
S6 Wrigley
S7 Johnson & Johnson

BRONZE

B1 Southern Cross Dental
B2 McDowell + Service Dental Laboratory Ltd
B3 iTero
B4 Optident
B5 B.F. Mulholland Ltd
B6 Megagen Implants
B7 Swordfish Medical
B8 DeCare Dental
B9 Initial Medical Services

TRADE

1 Morris Dental Company Ltd
2 Septodont
3 QSIP Ltd
4 Murray Woods
5 IDT Ireland
6 Ardagh Dental Supply
7 Oral B
8 Parnell Pharmaceuticals Ltd
9 Omega Financial Management
10 Karma Sales & Service Ltd
11 Handpiece Harry
12 MedAccount
13 NSK
14 Henry Schein
15 Coincidental
16 Southern Implants
17 3M
18 Doyle Mahon Insurance
19 Zimmer Biomet
20 Dental Protection
21 Irish Dental Nurses Association
22 Irish Dental Hygienists Association

Back in stock

Parnell Pharmaceuticals Limited has announced that Pretz Nasal Spray and Mouth Kote Spray are now being stocked again after an absence of some time. They are quality of life products that combat dry mouth (Mouth Kote) and nasal dryness (Pretz Nasal Spray). Parnell Pharmaceuticals is the only company that utilises a natural herbal extract from Yerba Santa to help promote enhanced moisturisation and lubricity of the mucosa similar to that of Aloe Vera. Both products are available through hospital or community pharmacies and if not, they can be ordered through leading wholesalers or directly from Parnell Pharmaceuticals.

Southern Cross Dental

Zirconia

Choose from our improved Zirconia range for optimised strength and aesthetics.

At Southern Cross Dental, our extensive range of Zirconia products means we have the right material for every case. Our high quality materials deliver on strength and durability while allowing you to customise the aesthetics to suit your patients' needs and achieve superior, more natural results.

Now more translucent.

FMZir
Zirconia

£69/€80

Full contoured Zirconia, where functionality and strength are paramount.

IPS e.max® ZirPress

£135/€169

Innovative veneered Zirconia, which combines high aesthetics and versatility.

Now even stronger.

UZir
Ultra Translucent

£85/€105

Multi-layered Zirconia, offering a unique combination of translucency & strength.

For advice on what's best for your case call us on (ROI) 048 8772 7100 or (NI) 028 8772 7100 or visit scdlab.co.uk

THE
Northumberland Institute
OF DENTAL MEDICINE

Specialist dental care in the heart of Dublin 4

For over 30 years, the Northumberland Institute of Dental Medicine has been synonymous with excellence, innovation and education in specialist dentistry.

Your Specialist Team

Dr Anne O'Donoghue
Periodontist

Dr Maher Kemmoona
Periodontist

Prof Brian O'Connell
Prosthodontist

Dr Breandán O'Niadh
Implant Dentistry

Prof Michael Carey
Consultant Anaesthetist

Dr Sittana Ahmed
Prosthodontist

Dr Cormac Cullinane
Endodontist

Dr Finn Geoghegan
Orthodontist

Mr Gary Leonard
Oral Surgery

Education & Training

- CPD-accredited training for dentists and dental nurses
- Practical, interactive and lecture-based courses
- On-site seminar rooms and teaching clinic

Northumberland Institute of Dental Medicine
58 Northumberland Road, Ballsbridge, Dublin 4

T: 01 668 8441 **E:** info@nidm.ie **W:** www.nidm.ie

Member of **DENTAL CARE** IRELAND

Crowning achievements

Dr Hannah Shields has climbed Mt Everest, journeyed to the North Pole, been buried in an avalanche, represents Ireland in athletics and is now coming to speak at the IDA Annual Conference about overcoming limits.

It was only after dentist Dr Hannah Shields' life took a bad turn that she realised she would not have forever to do the things she wanted: "I got quite ill in my late 20s and after that I was in hospital for a long time and I went: 'Right, okay, I have one life and I'm going to start doing the things that I'm really passionate about'."

Hannah was invited to trek out to base camp with the first Irish expedition to Mt Everest in 1993: "I saw the mountain for the first time from the Tibetan side and I knew that's what I wanted to do, climb".

She was there with the best Irish climbers and quizzed them on what it takes to climb Everest: "They gave me an idea of what needed to be done so I went back and formulated a plan because I knew I needed to get a lot of experience and learn how to climb first of all".

She returned from the trip, left her job in Northern Ireland and relocated to Sheffield because of the strong climbing culture in the city.

Once there she went on a lot of climbing courses, then kept pushing herself more and more, taking on bigger challenges. She says she was "always climbing with people who were better than me. They kept pushing me more, pushing me out of my comfort zone".

She improved over time but taking on the world's tallest mountain was going

To the Pole

Everest has not been her only adventure. She also took part in a race to ski to the magnetic North Pole: "Which was a fantastic experience as I finished it. There was 23 who started and only five finished. There was a team of Royal Marines, Arctic warfare specialists – there were three of them and another guy and myself and we were the only ones to finish the whole thing". The marines were so impressed they invited Hannah to work with them and she spent five years training people in polar exploration.

When not out adventuring Hannah enjoys cooking and spending time with her family and friends. She practises in an orthodontic practice in Ballymena, Co. Antrim. At the moment, she is focused on her running as she has goals in that area, but says there are still plenty of mountains she wants to climb.

to be difficult for her more than others because of a medical issue: "I'm asthmatic so I needed to know how my lungs would deal with altitude. I went out and started climbing in the high mountains around the world just to see could my lungs cope with it as well".

The death zone

In 2003, 50 years after the first summit of Everest, she returned intent on adding her name to the list of people who've climbed it. However, just as her team set off up the mountain, one of them had to turn back after picking up a bug. When this happened, Hannah thought she'd have to give up her climb as well. She pressed on but the team could not reach the summit due to high winds. They decided to stay in the death zone (above 8,000m) without oxygen and wait for a second try: "So by my second attempt, I was cold, oxygen deprived, I started to get frostbitten. Just short of the summit, I knew I was going to get into difficulties".

That's when she decided to turn around: "I came back down, devastated not to have summited but I knew I was capable of doing it so I did another wee list out of what I needed to work on".

In 2007 she went back to Everest as the only woman in a team of Russians: "It was amazing climbing with them, they smoked and they drank vodka the whole way up the mountain and they smoked and the drank vodka the whole way back down again".

This time around she reached the top to become the first Northern Irish woman to do so.

Adventures in oral health

She says that on big expeditions, you have to keep your oral health in mind. If you get tooth problems, you can't eat, you can't keep yourself healthy. She says she has people coming in after being in the mountains with gum issues because they stopped cleaning their teeth and that is a problem because a simple gum infection will not be a simple gum infection: "It flares up very quickly because your body can't cope. You have to be in the utmost physical health for all of this and your mouth is as important as any other part of you".

Love life

Hannah says that a lot people think that mountaineers and explorers have a death wish: "We don't. The vast majority of climbers and expedition people, they plan everything methodically, gain experience because they don't have a death wish. They love their life too much and it's exhilarating whenever you do these things".

Hannah believes people can achieve amazing things but that they do not come without work: "I have my dreams, love my dreams, but I don't keep sitting thinking of them as dreams. I sit down and make a plan of how to make this a reality. I always accept that whenever I set any of these goals, that they are huge challenges, that they require an awful lot of hard work … I know what it requires to be successful and I'm prepared to put that work into it, even when I don't want to".

Her advice for people who have something they want to achieve is: "That's wonderful, you have that goal. Don't get intimidated by the big picture, break it down into smaller things that are achievable at various stages so that you've got small things to keep working towards and ticking them off. Always have the big picture at the back of your head but don't just look at that and think, I want to climb Everest. That's not going to get you there".

She says she still has to pinch herself sometimes: "I'm a 53-year-old dentist from Northern Ireland. When I was seven or eight years old, I never thought I was going to do a quarter of the things I have ended up doing".

Dental Care Ireland opens latest practice

Dental Care Ireland, an Irish-owned nationwide network of dental practices, recently celebrated three years in business with the opening of its 13th practice in Greystones, Co. Wicklow.

Founded by Colm Davitt and his brother Dr Kieran Davitt, a Galway-based dentist, the group states that it acquires established, high-quality practices in local communities, with a view to helping them reach their full potential. It currently employs almost 200 dental team members across the country.

According to Chief Executive Colm Davitt: "Our business model is unique in that all of our dentists are established practitioners with a loyal patient base. We work closely with them to build on the traditions of each individual practice, while ensuring consistent standards for patients across the entire network.

"Our aim is to free dentists from administrative burden, allowing them to focus on clinical dentistry. We invest in upgrading the practices with latest facilities and technology, while providing administrative and management support. We also support the development of new services and treatments, education and training for staff, and more convenient opening hours for patients. In our rebranded practices, we are seeing exponential growth in new patient numbers, so the results really speak for themselves".

Speaking at the opening of Dental Care Ireland Greystones, formerly Kilfeather Dental, Dr Gerard Kilfeather said: "Today marks an exciting new chapter for the practice as we partner with Dental Care Ireland to enhance our overall patient offering. We have an extremely dedicated team here and I am delighted to welcome a number of new staff members to the practice".

At the official opening of Dental Care Ireland's practice in Greystones were (from left): Dr Gina Kilfeather; Rachel Sillery; Rachel Coughlan; Natasha Byrne; Colm Davitt (CEO, Dental Care Ireland); Maria O'Rourke; Ruth Manning; and, Dr Gerard Kilfeather. Pic. Robbie Reynolds.

Admira Fusion wins award

VOCO's Admira Fusion, a purely ceramic-based restorative material, has won Dental Advisor's 2018 Preferred Product. It got approval from the independent dental product evaluation organisation for a second year running, after winning the 2017 Product Award.

The company states that its Ormocer (organically modified ceramic) technology creates a strong, durable bond, decreasing the chance of microleakage due to low polymerisation shrinkage (1.25% by volume) and low shrinkage stress. VOCO believes its high biocompatibility further increases the longevity of restorations.

According to the company, Admira Fusion has an 84% (by weight) inorganic filler content, which delivers outstanding handling in comparison with market-relevant restorative composites. The company believes that this helps the clinician with effortless adaptation to surrounding tooth tissue.

A member of the Dental Advisor consultant panel commented: "It adapts readily to the preparation and is easy to sculpt". Another remarked: "Admira Fusion is a unique type of composite – it handles great and polishes easily".

VOCO.social

VOCO has announced a new online dental platform, VOCO.social. The company states that it wants dental professionals to join the conversation to share best practice and find solutions to today's challenges in dentistry.

Staying in touch with the latest dental news and views and making connections with like-minded professionals are some of the most important criteria for clinical success, job satisfaction and forging a meaningful career.

The company states that it sees itself as the dentist's partner, not only through its products, but also through constant communication and conversation with dental clinicians from around the world.

VOCO states that it has become increasingly aware of the need for more effective channels of communication within the industry. The company says it is proud to launch the new online platform, which it hopes will bring together all the things it is passionate about:

- connecting with dental professionals;
- celebrating everything that's great about dentistry;
- discussing today's challenges and finding solutions; and,
- discovering what's important to the entire dental team.

The platform features content from guest contributors and industry professionals, as well as clinical case studies, videos, and links to dental news and topics. The company states that VOCO.social offers the chance for the whole dental team to see, search and share with like-minded professionals. Discussions will centre around three core disciplines – minimally invasive, preventive and restorative – as well as digital technology and education.

VOCO would like to invite dentists to:

- connect on VOCO.social via your mobile, tablet or computer;
- see what the current topics are and find out what some of your colleagues are saying about today's dental industry;
- share the ideas and insights you have gained by commenting on the articles or sharing them on social media; and,
- search your areas of interest to see what others are saying or contribute yourself.

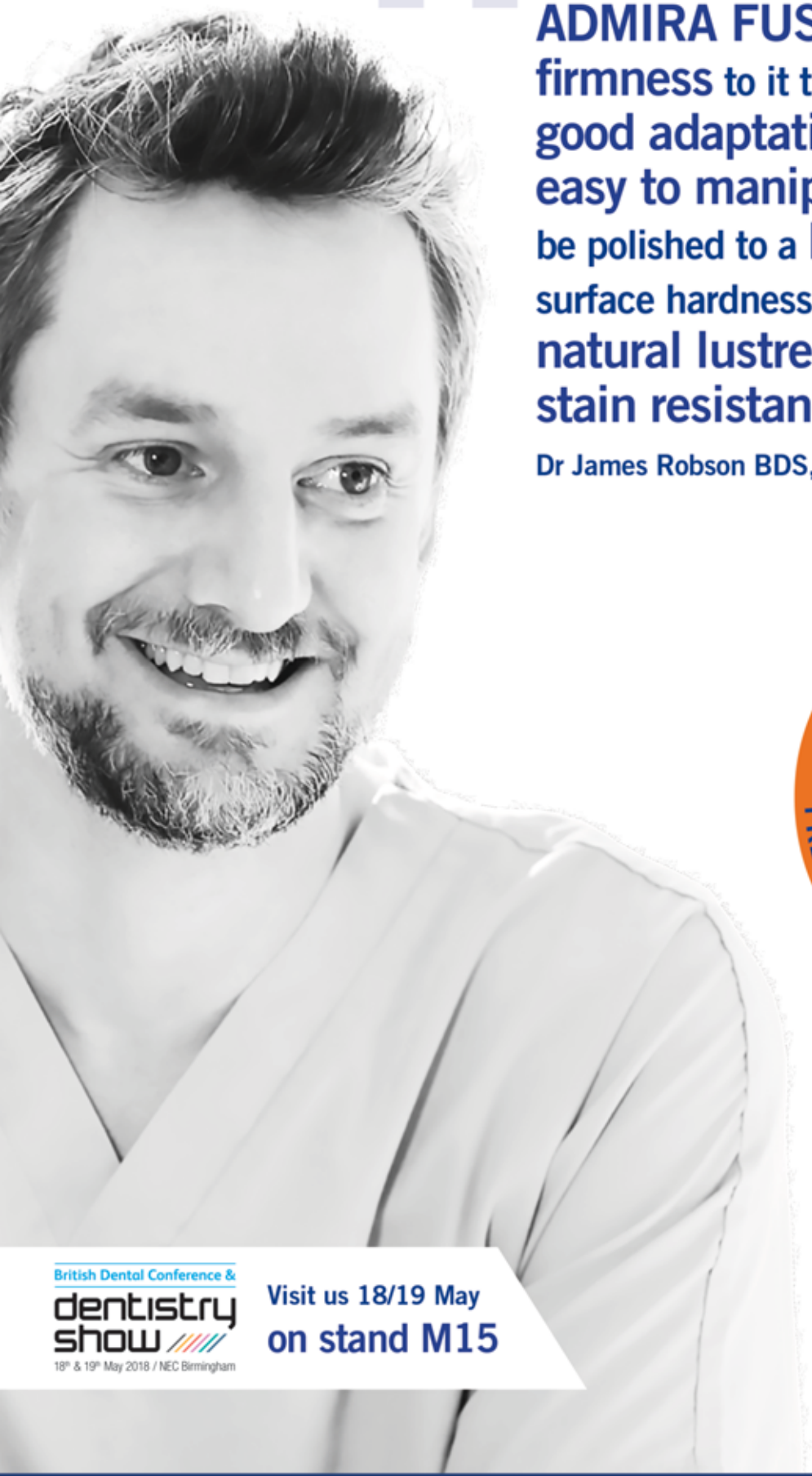
3 Dental chooses Neodent

3 Dental, a Dublin dental implant specialist, has chosen Neodent, a Straumann Group brand, as its preferred implant provider. Supplier Quintess Denta states that after a careful evaluation of a number of brands, Neodent came out on top for its quality and value. According to the company, for over 23 years Neodent has been trusted by thousands of clinicians, helping it to become the second largest manufacturer of implants in the world.

Ian Creighton, Implant Sales Manager at Quintess Denta, says: "We are delighted to welcome 3 Dental to our growing Neodent family. Being selected by one of the country's top dental practices is testament to the quality and the simplicity Neodent brings with its one prosthetic connection".

Quintess Denta is the exclusive distributor for Neodent and Medentika in Ireland.

VOCO
THE DENTALISTS



"The packable version of **ADMIRA FUSION** has a certain **firmness** to it that allows very **good adaptation** to cavity form and is **easy to manipulate** and sculpt. It can be polished to a **high shine** and it has a surface hardness giving a **long-lasting, natural lustre** and of course **stain resistance.**"

Dr James Robson BDS, Principal Dentist

British Dental Conference & dentistry show
18th & 19th May 2018 / NEC Birmingham

Visit us 18/19 May on stand M15

CREATE MINIMALLY INVASIVE AESTHETICS
CONTACT VOCO FOR YOUR FREE STARTER KIT.

VOCO.SOCIAL 00800 44 444 555 INFO@VOCO.SOCIAL

Henry Schein Digital Workflow

SINGLE VISIT DENTISTRY

Highly accurate, durable and beautiful results. **It's a simple process.**

Practice Management Software
• EXACT

3D Conebeam digital image
• ORTHOPHOS XG 3D

Intraoral scanner digital impression
• CEREC® OMNICAM

Secure digital data transfer
• DDX

Patient detail — **Scan** — **Transfer data**

Capture data and assess what work is needed

In-house
Design software
• CEREC® IN-PRACTICE
✓ Restorative
✓ Implant
✓ Orthodontics

In-house milling
• CEREC® MCXL

Same day fitting in-house

External
Lab software
• CEREC® INLAB
✓ Complex cases
✓ Dentist does not own a milling unit

Lab milling
• CEREC® MCXI

New appointment for fitting

Design — **Mill** — **Fit**

For more details contact your local Henry Schein Ireland office.

HENRY SCHEIN® ConnectDental® | Trusted Digital Solutions

For more information about our Henry Schein ConnectDental Trusted Digital Solutions, please contact Dublin 01 456 5288, Cork 021 429 7818 or email iesales@henryschein.ie

A new impression

The *Journal* spoke to Dr Ed O'Reilly, who has invested in a digital workflow, to see how it works in practice and in a practice.

Prosthodontist Dr Edward O'Reilly has embraced the digital workflow at Hampton Dental on Baggot St in Dublin. He uses a digital intraoral scanner and 3D-printed models to help him with his prosthodontic practice. He says the system is very comfortable for patients, especially those who struggle with a gag reflex, and easier to use than traditional impression modelling for dentists, but that it will not turn a bad clinician into a good one.

There are large set-up costs with these systems and Ed says that it would only be worth your while if you do a significant amount of fixed prosthodontics. A clinician can eliminate lab costs by milling their own crowns. The real advantage, however, is the improved patient experience that is achievable by using an intraoral scanner.

Ed works with a 3Shape TRIOS Battery Cart system, which has an intraoral device (the Wand) with a camera that can create a full 3D scan of a patient's mouth in about six to 10 minutes. It does this by taking thousands of photographs and 'stitching' them together. The scan is sent to a lab and instead of the models being cast in plaster, they are 3D printed in resin.

Ed says: "There is also the potential with this to never create a model. You could virtually create your restoration, virtually design it and then it's milled and sent straight back to you".

It is possible for a dentist to do everything themselves, from scanning to printing the models and milling their own crowns, but Ed still uses commercial labs. His advice is that a good relationship with a lab is important for a digital system to work. He prefers to have a dental technician with their own set of professional skills doing the work of milling and finishing crowns. Once the finished crown is back in the dentist's hand, placing it in the patient's mouth remains exactly the same.

To mill or not to mill?

Sales reps may recommend that you buy a milling machine, but Ed says: "You have to realise what your skill set is. I am not a lab technician but a clinician, and I know that my skill set is in meeting a patient, coming up with a treatment plan that suits the patient, and then carrying it out to meet the patient's expectations".

There is another reason he chose not to mill his own crowns: "If you're milling your own crowns chairside, it means you're using an all-ceramic material. Do I use an all-ceramic material for every tooth I restore? Absolutely not. I like the way we do not have to change our treatment plan or material used with the way we use our digital workflow".

The digital system eliminates the need to fill a patient's mouth with an

Doing the math…

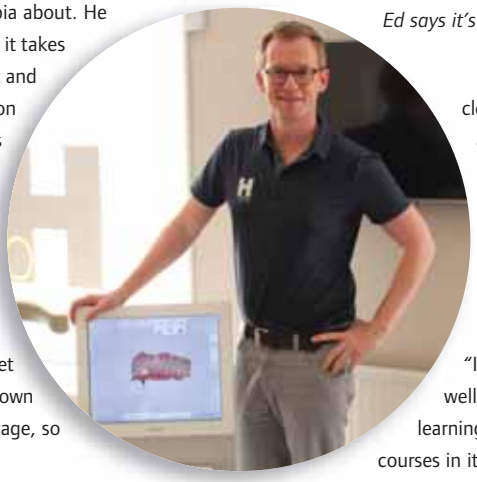
This equipment is a big investment for any practice:

- scanners start at €35,000 incl. VAT;
- milling machines will cost another €40,000 extra incl. VAT; and,
- 3D printers start at around €4,000.

If you do 10 impressions a week at a cost of €15 per impression, this works out at €600 a month, which is about the cost of the leasing payments for a scanner.

Costs are important but Ed says: "Look beyond the numbers and consider other benefits to your practice, your patients and your working life. Used properly, scanning can help you to improve your dentistry".

impression material, which some people have a phobia about. He says that while using the scanner can reduce the time it takes to do impressions, you still have to take time doing it and make sure everything is right: "Making an impression for someone with a small mouth and a gag reflex is still tricky but it's made a little bit easier by the experience we're able to produce with this machine".



Ed says it's a more comfortable experience for patients.

Ed says to make sure the system you choose is open: "If you are going to invest in a system, you need to make sure it is flexible and will allow you to expand to fit your growing needs. If you decide to get into milling your own crowns or printing your own models, these are things you can add on at a later stage, so you want a system that allows you to do that".

Working digitally is more time efficient and accurate he says, and it is simple to integrate into a practice: "There are obviously advantages to going digital, especially for a practice that does a lot of fixed work such as crowns and bridges, implant work, etc. From a patient point of view, we feel it's a more comfortable experience. With accuracy, there's a reduced number of adjustments and remakes".

The system that Ed uses allows him to combine clinical data so you can record the shape of teeth. You then have a 3D CBCT image and you can merge the data in a piece of software and virtually plan implant placement.

He says the biggest benefit in his view is a better patient experience but also: "You feel more current. You've updated yourself, you've learned a new skill.

It probably gives you better scope to review the work you've done before you send it because you're looking at an image that is very big and it gives you an opportunity to review how much space you've created, so it gives you feedback about the tooth preparation. Before you send it you know if you have enough clearance, the margins are clear, you haven't missed any information because the software itself will tell you if you're missing a bit here or there. It's very intuitive.

"There's been lots of positives about it and I can't say there's been too many negatives. Obviously, I would love it to be cheaper. It's not a magic wand but I certainly feel it has helped the practice.

"If you have the right lab onside, if you communicate well, if you are open to using new technology and learning a new skill set, try and understand and do some courses in it".

But it is important to consider what the volume or the interest would be among your patients to see if it would be worthwhile.

Ongoing costs

He says that dentists will probably not save money by going digital. Along with set-up costs, these systems cost €3,000 plus every year in support: "Do I save money? No, I don't think so. I haven't actually looked at the numbers on it but I know I was doing plenty of impressions the old way and therefore, if anyone was going to save a few quid on it, it's going to be in a practice like mine".

His advice is to start small, get a scanner and then move on from there if you wish, although you don't have to. Speak with your labs and listen to their advice and experiences. Do the same with other dentists who've been through the process.

In conclusion, he says: "It is not the panacea but it certainly makes the patient's journey a little more comfortable we feel".

The minutiae of Minamata

The Minamata Convention will change the way dentists use dental amalgam.

The Minamata Convention is a global treaty aiming to protect human health and the environment from the adverse effects of mercury pollution. Ireland signed up to the treaty in 2013, and the European Parliament agreed its regulation on mercury in March 2017.

Significant changes will come into effect within the next 12 months with regard to the use of dental amalgam. EU regulations stipulate that:

- dental amalgam is only to be used in pre-dosed encapsulated form from January 1, 2019;
- the use of amalgam separators will be mandatory from January 1, 2019, with a standard of retention of at least 95% of amalgam particles for separators installed from January 2018 (this will apply to all separators from January 1, 2021);
- amalgam waste must be handled and collected by an authorised waste management establishment; and,
- from July 1, 2018, amalgam is not to be used in primary teeth, children under 15 years and pregnant/breastfeeding women except if deemed necessary on the ground of "specific medical needs".

Ireland and all other EU members will also be required to have a national plan on the phasing out of the use of dental amalgam by July 1, 2019. The European Commission will also report by the end of June 2020 on the assessment of:

- the need for the EU to regulate mercury emissions from crematoria; and,
- the feasibility of phasing out dental amalgam completely, preferably by 2030, taking into account the arrangements in place within individual member states.

Bernice McLaughlin
Dento-legal Adviser
Dental Protection

Huge change

Clearly this will have major implications for dentistry. Amalgam has been a successful, cost-effective restorative material for many years. Although prevention is key, it will be necessary to have a comparably effective, affordable alternative to avoid the unintended consequence to the most disadvantaged patients, who are unable to afford the more costly alternatives to amalgam currently available, and may simply opt to have extractions.

The restriction on amalgam use in the under-15s and during pregnancy/breastfeeding appears precautionary rather than evidence based. The interpretation of "medical needs" as a therapeutic exception to the rule remains to be clarified; however, there is an ethical responsibility on the dentist to protect the best interests of the patient, and leaving disease untreated is clearly not ideal.

Justifying amalgam

If a decision is made to use amalgam, then it will be important for the dentist to be able to justify this. Careful documentation of the consent process is essential. This should include details of the discussions with the patient/parent about:

- the status of amalgam with reference to Minamata and the EU regulation, along with an explanation of the reason for suggesting the use of amalgam in the particular circumstances for the patient; and,
- the advantages and disadvantages of alternatives, including cost and longevity.

The records should show clearly that any decision to proceed with the use of amalgam was made with the full knowledge and understanding of the patient/parent, including the background and implications of this.

If amalgam is being considered for use in a patient not in the "precautionary groups", it is advisable to discuss the EU's position with the patient along with the risks and benefits of alternatives to ensure that fully informed consent is obtained. Details of this discussion should be duly recorded in the notes.

If there are any doubts, please contact Dental Protection or your dental defence organisation for further advice.

Nitrous oxide versus midazolam for paediatrics

Précis

This review shows little to separate midazolam and nitrous oxide as single-agent sedatives for conscious sedation for healthy children. This supports the careful use of nitrous oxide or midazolam as a means of giving options to children to receive appropriate dental care in Ireland, by suitably trained and skilled conscious sedation teams in certain circumstances.

Abstract

Statement of the problem: There is often a need for pharmacological behaviour support among children requiring dental care. Midazolam sedation is rarely considered for the paediatric population in Ireland, in line with Dental Council guidelines. However, the evidence base for this guidance is unclear.

Purpose of the review: The aim of this systematic review is to summarise the strongest available evidence relating to comparison of the safety and effectiveness of nitrous oxide and midazolam in conscious sedation for healthy young dental patients.

Materials and methods: Using a systematic review methodology, according to a predefined protocol, searches of PubMed and Google Scholar were conducted. Citation chaining was undertaken and seven key journals were hand searched. Titles and abstracts were screened by two authors and full texts read. Included studies were randomised controlled trials comparing the use of nitrous oxide and midazolam, as single-sedative agents, in children ≤16 years of age. Information regarding methods, participants, interventions, outcome measures and results were extracted. Each trial was assessed for risk of bias. Grading of recommendations, assessment, development and evaluations (GRADE) standards were then applied to measure the strength of evidence.

Results: Six randomised controlled trials were included. All trials were at high risk of bias. Trials were grouped into those comparing nitrous oxide with oral midazolam, intravenous midazolam or transmucosal midazolam. There is weak evidence that both nitrous oxide and midazolam are safe and effective sedative agents for use in the healthy paediatric population.

Conclusions: This review considers the strongest level of evidence available regarding comparison of the safety and effectiveness of nitrous oxide and midazolam as single-drug sedatives. It shows little to separate both techniques, at least when compared as single-drug techniques. The evidence, limited as it is, supports nitrous oxide as a preferred sedative and the judicious use of midazolam as a means of giving options to children to receive appropriate dental care.

KEY WORDS: nitrous oxide; midazolam; dental; conscious sedation; systematic review; Ireland

Journal of the Irish Dental Association 2018; 64 (2): 88-95

Dr Miriam Bourke BDS DipConSed
General Dental Surgeon
HSE South

Dr Caoimhin Mac Giolla Phadraig DDentCh
Special Care Dentist, Department of Child and Public Dental Health, Dublin Dental University Hospital

Corresponding author:
Dr Caoimhin Mac Giolla Phadraig,
Department of Child and Public Dental Health, DDUH, Lincoln Place, Dublin 2

Introduction

There is extensive dental disease among Irish children.[1,2] This means that they are likely to need a lot of dental treatment. However, children often find dentistry difficult because it is anxiety evoking.[3] This is associated with a number of negative outcomes including increased oral disease, avoidance of care, and behavioural challenges in the dental surgery.[4-6] With most cases of dental anxiety originating in childhood and adolescence,[7] the repercussions of this anxiety can be life long.[8,9] Therefore, the acceptable application of proportionate behaviour support for children attending Irish dentists is essential. A range of options is available to do so, which can be broadly considered as non-pharmacological or pharmacological behaviour supports.[10] Pharmacological support generally includes general anaesthesia and sedation with either nitrous oxide and oxygen inhalation sedation, or benzodiazepine, mainly midazolam-based, intravenous, transmucosal or oral sedation (see **Table 1** for a comparison of nitrous oxide and midazolam). The Dental Council of Ireland recommends avoidance of intravenous sedation for children, particularly under the age of 10 years, meaning that children generally only receive general anaesthesia or nitrous oxide sedation.[11] This has effectively ruled out the use of intravenous and, more generally, midazolam-based sedation for many children in Ireland. As a result, children are offered inhalation sedation or general anaesthesia as pharmacological behaviour support but not midazolam. This is limiting because general anaesthesia should be avoided where possible, due to the rare risk of morbidity, potential mortality and the emotional impact on the child.[12-15]

Recent changes to the availability of general anaesthetic services in the public dental service have challenged capacity to meet need by these traditional means. Meanwhile, a number of evidence-based developments from the UK and Scotland have suggested that benzodiazepines are now an acceptable alternative to nitrous oxide for use in children and young people in specific circumstances.[16-18] It is worth noting that, in these guidelines, a child is defined as a person under the age of 12 years and a young person is between the ages of 12 and 16 years. In view of the limited availability[19,20] and associated high costs[21] of securing timely access to both commonly applied methods of pharmacological support in Ireland, and with the imminent updating of Dental Council guidelines, it is time to ask whether it is reasonable to limit our patients' options by effectively excluding midazolam-based conscious sedation for children?

Within this context, this review aims to systematically review the evidence to answer this question: is midazolam-based sedation as safe and effective as nitrous oxide sedation for use with children undergoing dental care?

Methods

Study selection

Adhering to a predefined protocol, and following standardised methods, a systematic review was undertaken.[22] The following search string was entered into PubMed on 04/09/2017: "((((“paediatric” OR “pediatric” OR “child” OR “adolescent”)) AND (“dentistry” OR “dental” OR “oral” OR “orofacial”)) AND (“nitrous oxide sedation” OR “inhalation sedation” OR “inhalational sedation” OR “relative analgesia” OR “laughing gas” OR “gas and air”)) AND (“midazolam” AND “sedation”)". An advanced search of Google Scholar was carried out. Hand searching was undertaken of key journals including: the *International Journal of Paediatric Dentistry; Journal of Dentistry for Children; British Dental Journal; Journal of the Irish Dental Association; Anaesthesia; Journal of Disability and Oral Health*; and, *SAAD Digest*. Citation chaining was

Table 1: Properties of nitrous oxide and midazolam.

Sedative agent	Nitrous oxide	Midazolam
Properties	Colourless gas, with pleasant sweet smell	Water-soluble, short-acting, high-potency benzodiazepine
Clinical effects of sedation	▸ Anxiolysis ▸ Analgesia	▸ Acute detachment for 20-30mins then a period of relaxation for approximately one hour ▸ Anterograde amnesia ▸ Anticonvulsant action ▸ Muscle relaxant
Advantages	▸ Non-invasive technique ▸ Rapid onset and recovery due to low solubility ▸ Ability to titrate according to patient's response	▸ Ability to titrate when used intravenously ▸ Level of sedation achieved pharmacologically rather than psychologically ▸ Recovery within a reasonable period; patient discharged usually less than two hours following treatment ▸ Ability to reverse with flumazenil
Disadvantages	▸ Level of patient acceptance required ▸ Level of sedation relies heavily on psychological reassurance ▸ Potential hazard to staff if effective scavenging and ventilation systems not in place	▸ Need for venepuncture ▸ No clinically useful analgesia

Table 2: Inclusion and exclusion criteria.

PICOS parameter	Inclusion	Exclusion
Population	Children ≤16 years of age ASA I/II/III Undergoing dental treatment or oral surgery	>16 years of age ≤16 years with ASA >III Undergoing dental treatment or oral surgery
Intervention	Inhalation sedation with N_2O	Multi-drug techniques
Comparison	Midazolam All routes of administration	Multi-drug techniques
Outcome	Any behavioural, physiological outcomes Adverse effects Completion of treatment	
Study design	Randomised controlled trials comparing nitrous oxide and midazolam	All other designs

Table 3: Characteristics of included studies.

Author	Source	Year	Study design	Drug	Route	Dosage	Sample size	Age	ASA	Treatment	Measure
Luhmann *et al.*	*Annals of Emergency Medicine*	2001	Prospective randomised clinical trial	Nitrous oxide Midazolam	Inhalation Oral	Continuous flow 50% 0.5mg/kg	103	2-6 years (mean 4.1)	I and II	Facial laceration repair	Observational Scale of Behavioural Distress – Revised (OSBD-R). Visual analogue scale.
Wilson *et al.*	*Anaesthesia*	2002	Prospective randomised controlled crossover trial	Nitrous oxide Midazolam	Inhalation Oral	Maximum dose – 30% N_2O 0.5mg/kg	46	10-16 years (mean 12.5)	I	Orthodontic extraction of at least four teeth	1) Brietkopf and Buttner Classification of emotional status. 2) Frankl Behaviour Rating Scale. 3) Houpt Behaviour Rating Scale. 4) Spielberger's State Anxiety Inventory. 5) Children's Fear Survey Schedule, dental subscale.
Wilson *et al.*	*British Dental Journal*	2002	Prospective randomised controlled crossover trial	Nitrous oxide Midazolam	Inhalation Oral	Maximum dose – 30% N_2O 0.5mg/kg	26	10-16 years (mean 12.5)	I	Orthodontic extraction of at least four teeth	1) Brietkopf and Buttner Classification of emotional status. 2) Frankl Behaviour Rating Scale. 3) Houpt Behaviour Rating Scale.
Wilson *et al.*	*British Journal of Anaesthesia*	2003	Prospective randomised controlled crossover trial	Nitrous oxide Midazolam	Inhalation Intravenous	Maximum dose – 30% N_2O Mean dose 2.8mg (range 1mg-5mg) Max. 5mg.	42	12-16 years (mean 13.2)	I and II	Orthodontic extraction of at least four teeth	1) Brietkopf and Buttner Classification of emotional status. 2) Frankl Behaviour Rating Scale. 3) Houpt Behaviour Rating Scale. 4) Spielberger's State Anxiety Inventory. 5) Children's Fear Survey Schedule, dental subscale.
Wilson *et al.*	*Anaesthesia*	2006	Prospective randomised controlled crossover trial	Nitrous oxide Midazolam	Inhalation Oral	Max. dose - 30% N_2O 0.3mg/kg	42	5-10 years (mean 7.4)	I and II	Extraction of four primary teeth, one in each quadrant of the mouth	1) Brietkopf and Buttner Classification of emotional status. 2) Houpt Behaviour Rating Scale.
Wilson *et al.*	*Acta Anaesthesia Scand*	2007	Prospective randomised controlled crossover trial	Nitrous oxide Midazolam	Inhalation Transmucosal	30% N_2O 0.2mg/kg	45	10-16 years (mean 12.9)	I and II	Orthodontic extractions of four premolar teeth	1) Brietkopf and Buttner Classification of emotional status. 2) Houpt Behaviour Rating Scale. 3) Spielberger's State Anxiety Inventory. 4) Children's Fear Survey Schedule, dental subscale.

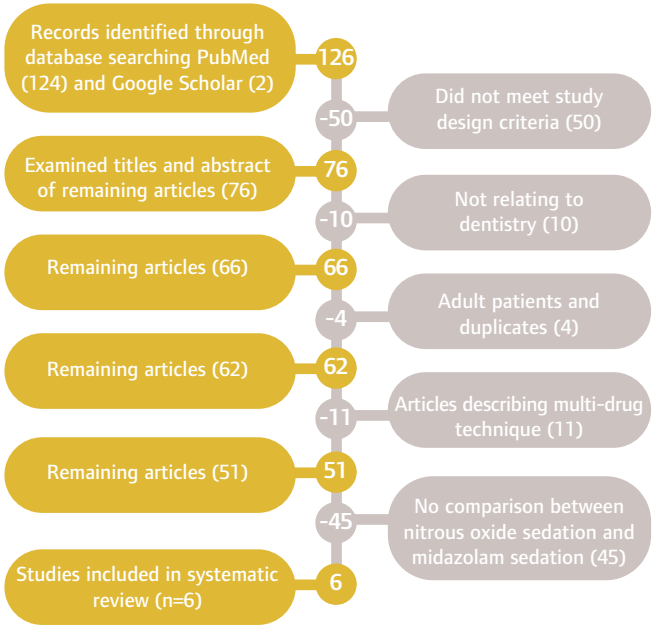


FIGURE 1: Modified PRISMA diagram of studies included in the systematic review.

undertaken for included studies and the corresponding author of a number of included trials was contacted. Title and abstract screening was undertaken by two authors independently and differences discussed. Full texts were retrieved for articles meeting the selection criteria (**Table 2**). Data were extracted and tabulated by one author.

Quality assessment and synthesis

All studies meeting selection criteria were included in this review. Included trials were quality assessed regarding sequence generation; allocation concealment; blinding (this was assessed in three groups: patient, operator/sedationist and outcome assessor); incomplete outcome assessment; freedom from selective reporting; and, other bias.[23] Within each study, a summary assessment of low risk of bias was made when there is a low risk of bias for all key domains, unclear risk of bias when there is an unclear risk of bias for one or more key domains, and high risk of bias when there is a high risk of bias for one or more key domains.

A narrative synthesis was structured according to the interventions compared: trials comparing oral midazolam and nitrous oxide; trials comparing intravenous midazolam and nitrous oxide; and, trials comparing transmucosal midazolam and nitrous oxide. Quality assessment was undertaken to assess level of evidence from all reviewed articles according to grading of recommendations, assessment, development and evaluations (GRADE) methods.[24]

Table 4: Summary of interventions and outcomes.

Studies	Time to maximum sedation (mins)	Level of sedation	Behaviour	Vital signs	Adverse events	Total appointment time (mins)	Patient preference
Luhmann (2001)	Not recorded	Not recorded	Significantly lower levels of anxiety in N_2O group	No cardio-respiratory adverse events at any time	Increased incidence in midazolam group	Only recovery time noted, N_2O: 21 Midazolam: 30	N/A
Wilson (2002)	N_2O: 5 Midazolam: 20	Higher for midazolam	Overall behaviour score similar for both groups	Within safe limits for both groups	Incidence low for both groups	N_2O: 35 Midazolam: 100	54% preferred midazolam 44% preferred N_2O 2% no preference
Wilson (2002) *BDJ*	N_2O: 5.2 Midazolam: 26.8	Higher for midazolam Difference highly significant	No difference in overall behaviour scores	Within safe limits for both groups	Self-limiting Not serious	N_2O: 32.8 Midazolam: 93.6	65% preferred midazolam 35% preferred N_2O
Wilson (2003)	N_2O: 6 Midazolam: 8	Difference between two groups not significant	No significant difference between both groups	Stayed within normal limits for both groups	Not serious None required emergency attention	N_2O: 34.8 Midazolam: 69.2	51% preferred midazolam 38% preferredN_2O 11% no preference
Wilson (2006)	N_2O: 6.8 Midazolam: 15.9	Higher for midazolam Difference found to be significant	No statistically significant difference between the two groups	Within safe limits for both groups	Self-limiting No treatment required	N_2O: 33.2 Midazolam: 74.8	No difference found between the two groups regarding preference
Wilson (2007)	N_2O: 7.1 Midazolam: 14.4	Similar for both groups	No significant difference in overall behaviour was noted	Within safe limits for both groups	No significant difference between groups. Symptoms minimal	N_2O: 34.1 Midazolam: 64.7	57.1% preferred N_2O 28.6% preferred midazolam 14.3% no preference

Results

Eligible studies

The PubMed and Google Scholar database search yielded 126 articles (**Figure 1**). Hand searching seven journals, citation chaining, scanning reference lists of relevant articles and contacting lead authors did not identify any new article that met the inclusion criteria. Six trials met the inclusion criteria. See **Table 3** for a summary of included trials.

Trial characteristics: design, setting and participants

Five of the studies adopted randomised, controlled, crossover trial design,[25-29] and one was a randomised clinical trial.[30] Dates of publication ranged from 2001 to 2007. Five were undertaken in the United Kingdom[25-29] and one in the USA.[30] All studies were hospital based. The number of paediatric patients analysed in the six trials ranged from 26 to 103 (304 in total). Participant age ranged from two to 16 years. Two trials included American Society of Anesthesiology (ASA) Classification ASA I patients only,[25,26] while four included both ASA I and ASA II.[27-30] Three trials recorded participants' baseline anxiety levels prior to commencing treatment.[25,27,29] Two of these used Spielberger's State Anxiety Inventory, to assess general anxiety, and the Children's Fear Survey Schedule, dental subscale to score dental anxiety.[25,29] The Observational Scale of Behavioural Distress – Revised (OSBD-R) was used in the third trial to assess distress at baseline.[30]

Characteristics of interventions

All articles compared nitrous oxide and midazolam as the sole sedative agent used. One trial included four treatment groups, one of which received both nitrous oxide and midazolam in combination, and this was compared with a treatment group that received standard care alone, one that used nitrous oxide only and one that used midazolam only.[30] The former two groups were not considered in the synthesis as they did not meet the inclusion criteria.

Regarding nitrous oxide, most trials (n=5) used a Quantiflex MDM relative analgesia machine to administer nitrous oxide via a nasal mask, in increments of 10%, to a final and maximum level of 30%.[25-29] One trial used continuous delivery of 50% nitrous oxide.[30]

Midazolam was delivered orally in four studies,[25,26,28,30] intravenously in one[27] and transmucosally in one.[29] Oral doses were defined as 0.5mg/kg, 20-45 minutes prior to treatment, in three trials,[25,26,30] and at 0.3mg/kg 20-30 minutes before commencing treatment in the fourth trial.[28] The study comparing intravenous midazolam delivered titrated midazolam via a 24-gauge venous cannula at a rate of 0.5mg/min to a maximum of 5mg, following application of EMLA.[27] The trial using the transmucosal route applied EPISTAT, for buccal administration[29] at a dose of 0.2mg/kg, placed in the buccal sulci, for a minimum of 10 minutes.

Table 5: Risk of bias summary: review author's judgements about each risk of bias item for each included trial.

	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding – patient	Blinding – operator/ sedationist	Blinding – outcome assessor	Incomplete outcome assessment	Free of selected reporting	Free of other bias
Luhmann (2001)	+	+	-	-	+	+	+	+
Wilson (2002) (*Anaesthesia*)	+	+	-	-	-	+	+	-
Wilson (2002) (*BDJ*)	?	+	-	-	-	+	+	-
Wilson (2003)	+	+	-	-	-	+	+	-
Wilson (2006)	+	+	-	-	?	+	+	+
Wilson (2007)	+	+	-	-	?	+	+	+

+ Low risk of bias - High risk of bias ? Unclear risk of bias

Characteristics of outcome measures

Outcomes related to behaviour and physiological parameters, and number of patients completing treatment in all trials. Most trials reported adverse events. Behaviour during treatment was measured using the Frankl Behaviour Rating Scale[27-29] and the Houpt Behaviour Rating Scale.[25,26] Overall behaviour and outcome of treatment was measured using the Houpt Behaviour Rating Scale.[25-29] Levels of general anxiety and dental anxiety were measured using Spielberger's State Anxiety Inventory and the Children's Fear Survey Schedule, dental subscale, respectively.[25,27,29] The level of sedation observed was measured using Brietkopf and Buttner's classification of emotional status in five trials.[25-29] The OSBD-R was used in one trial to assess distress throughout treatment.[30] These and additional outcomes are summarised in **Table 4**. A summary of quality assessment for these trials is presented in **Table 5**.

Synthesis

1. Trials where oral midazolam and nitrous oxide are compared (n=4)

Four trials compared nitrous oxide sedation to oral midazolam in samples ranging from two years to 16 years.[25,26,28,30] A total of 209 children participated in these four studies, with 205 of them completing treatment. Twelve patients withdrew for reasons including inability to tolerate the taste of oral midazolam or the nasal mask, lack of co-operation, failure to attend second visit, and requesting inhalation sedation for any further treatment. Behaviour during treatment and overall behaviour was measured using the Houpt Behaviour Rating Scale and Frankl Behaviour Rating Scale, respectively, in three trials.[25,26,28] No significant difference in behaviour was noted between the two groups. A significant reduction in anxiety levels was noted in both groups when pre- and postoperative levels were measured using Spielberger's State Anxiety Inventory and the Children's Fear Survey Schedule, dental subscale.[25] A significant difference in maximum level of sedation was noted in three trials, with midazolam producing higher levels of sedation.[25,26,28] Luhmann *et al.* (2001), using the visual analogue scale (VAS) for anxiety, recorded the deepest level of consciousness in each included group. This trial also reported a significantly lower mean OSBD-R score for the group that received nitrous oxide sedation compared to midazolam. All four trials state that the physiological parameters of patients remained within acceptable clinical limits for both groups. Two trials found that while the difference in arterial oxygen saturation for the nitrous oxide group and the midazolam group was statistically significant, the values for the midazolam group remained within safe limits for conscious sedation (91%-100%).[25,26] The incidence of side effects was low across all four trials for both nitrous oxide and midazolam sedation. Luhmann *et al.* (2001) reported that children who received midazolam were more likely to experience adverse events up to 24 hours after the procedure including ataxia, dizziness and difficulty walking.[30] The total appointment time was significantly greater for the midazolam group in all four trials. This major disparity can be attributed to the difference in time spent in the recovery area.

Table 6: GRADE: summary of findings.

Nitrous oxide compared with midazolam to sedate an anxious paediatric patient.

Patients or population:	Healthy children undergoing dental treatment
Setting:	Dental hospitals, emergency departments
Intervention:	Nitrous oxide
Comparison:	Midazolam

Outcomes	No. of participants (trials)		Quality of the evidence (GRADE)[24]	Comments
Behaviour	N_2O Midazolam (six trials)	304 304	Low ⊕⊕◯◯	Five trials found no significant difference. Increased behaviour with N_2O in one trial.
Physiological parameters	N_2O Midazolam (six trials)	304 304	Low ⊕⊕◯◯	Remained within safe clinical limits.
Adverse events	N_2O Midazolam (six trials)	304 304	Low ⊕⊕◯◯	Incidence low. Self-limiting. Not serious.

Five studies were downgraded due to lack of blinding of participants and four were downgraded due to unclear blinding of assessors.

2. Trials where intravenous midazolam and nitrous oxide are compared (n=1)

Wilson *et al.* (2003)[27] compared the effectiveness of intravenous midazolam sedation in paediatric dental patients with nitrous oxide sedation, for the orthodontic extraction of at least four teeth in 12-16 year olds. Some 42 patients were recruited for inclusion. A total of 13 other patients (24%) were unwilling to take part, citing concern over cannulation. Two participants withdrew as they were not happy to have intravenous sedation. Some 40 patients completed the trial. No significant difference in Houpt Behaviour Rating Scale and Frankl Behaviour Rating Scale was seen between the two groups. Favourable results were indicated for outcome of treatment in both groups, recorded by section four of the Houpt Behaviour Rating Scale. Brietkopf and Buttner's classification of emotional status noted greater levels of sedation for the midazolam group, with level of sedation remaining higher during recovery for this group. The difference was not statistically significant. Physiological variables remained within normal limits for both study groups. On returning home, side effects, including nausea, drowsiness and headache, were reported by 14 patients in the midazolam group compared to 11 in the nitrous oxide group. The total appointment time was greater for the intravenous sedation group. This outcome can be attributed mainly to the increased recovery time associated with midazolam sedation.

3. Trials where transmucosal midazolam and nitrous oxide are compared (n=1)

Wilson *et al.* (2007)[29] evaluated the effectiveness, safety and patient acceptability of buccal midazolam, 0.2mg/kg, in comparison with nitrous oxide sedation, for orthodontic extractions in 10- to 16-year-old patients. Some 36 patients completed the trial. The reasons for withdrawal included inability to tolerate the taste of midazolam and patients becoming unco-operative. Using the Houpt Behaviour Rating Scale, no child demonstrated disruptive behaviour in either group, with no significant difference in overall behaviour noted. Pre- and postoperative levels of general and dental anxiety were assessed using Spielberger's State Anxiety Inventory and the Children's Fear Survey Schedule, dental subscale, respectively. A significant reduction in anxiety levels was noted. The maximum sedation scores recorded using Brietkopf and Buttner's classification of emotional status were similar for both groups. All vital signs remained within acceptable clinical limits for both forms of sedation. Side effects were reported by 16 patients in the midazolam group, compared to 14 patients in the nitrous oxide group. These included sleepiness, headache and slight nausea. The duration of visit for the buccal midazolam group was 64.7 minutes (60-90 minutes) compared with 34.1 minutes (28-44 minutes) for the nitrous oxide group.

Quality assessment

According to Higgins and Altman,[23] all studies reviewed were at high risk of bias due to the lack of blinding of participants and operators (see **Table 5**). Applying the GRADE[24] approach to assess the quality of evidence included in this systematic review, the quality of evidence was low due mainly to the lack of blinding across all trials (see **Table 6**).

Discussion

Summary of main results

This review found that nitrous oxide and midazolam are equally safe and effective sedative agents for use with healthy children and young people in hospital settings. No patient suffered significant respiratory depression in any of the included trials, with a low incidence of excitatory behaviour observed for both nitrous oxide and midazolam. The safety of both these techniques is further highlighted, as any desaturation recorded remained within safe clinical limits in all trials. While one trial concluded that nitrous oxide is more effective for relieving anxiety and has fewer adverse effects than oral midazolam,[30] their overall effectiveness, in relation to behaviour scores, level of sedation and treatment completion, was largely equal. However, treatment with midazolam took longer than with nitrous oxide.

Limitations of included studies and systematic review

These results are largely in agreement with similar reviews, which found weak to very weak evidence for midazolam and nitrous oxide as sedative agents for children undergoing dental treatment.[12] The results of this systematic review need to be considered in view of the limitations of both the studies included and the actual review process. The overall risk of bias across included trials was high, mainly due to a lack of operator, outcome assessor and participant blinding. This may have influenced how interventions were delivered, experienced and measured. Suggestions to reduce associated detection and performance biases have been made since.[12] Another possible bias arises because the effectiveness of nitrous oxide is largely dependent on operator

communication skills.[31] Therefore, the same operator should deliver sedation to all participants in research of this kind to remove this potential confound. This was not carried out in most included trials. We can conclude that the evidence supporting our findings is at risk of bias, but still useful.

Other limitations involve external validity. In the studies reviewed, baseline anxiety and behaviour levels were not always clearly recorded. Given that treatment was very often completed, and that some populations, such as patients requiring orthodontic extractions, were unlikely to represent highly anxious groups or those with behavioural issues, the effectiveness of these sedative agents may vary when applied to patients who most readily benefit from conscious sedation in practice. One must also remember that these studies were undertaken on hospital sites under research conditions by appropriately trained and supported sedationists. There is an obvious need for future research in community and practice settings.

Regarding the methods applied here, the search strategy was limited to two electronic databases and hand searching of key journals. It is worth noting that the randomised controlled trial conducted by Luhmann *et al.*[30] studied children attending an emergency department for facial laceration repair. As the search strategy aimed to include similar orofacial procedures, the decision was made to include it in this review. The five other trials were conducted by the same team of authors. Five trials included here adopted crossover designs, which introduce a possibility of a carryover effect influencing the direct treatment effect.[22] For these reasons, the latest Cochrane review on paediatric sedation excluded crossover trials,[12] whereas they were included in NICE guidance.[18] While techniques involving multi-drug sedation were excluded in this study, largely because the Dental Council of Ireland does not permit multi-drug sedation in Ireland, there is a broader literature suggesting that combined nitrous oxide and midazolam is an attractive alternative.[32-34]

Implications for practice in Ireland

There are many factors that influence the sedative agent chosen for a patient, including complexity of treatment, medical and behavioural complexity, and level of anxiety.[35] Given this complexity, neither nitrous oxide nor midazolam will serve the needs of every child who requires pharmacological support. Guidance from the UK and Scotland[16,17] recognises the need for a range of sedative options for children. This considers nitrous oxide as a first choice, basic or standard technique. It also acknowledges that midazlolam is a valid[18] advanced technique, for those under the age of 12 years, when the clinical needs of the patient are not suited to sedation using nitrous oxide. Out of interest, midazolam is considered a basic technique for young people over the age of 12 years, unless the patient has complex needs. This designation as an advanced technique stipulates that dentists who sedate children under 12 years of age, using midazolam, must be skilled in paediatric immediate life support, at a level equivalent to a consultant anaesthetist, competent in sedation for dentistry.[16,17] The evidence reviewed here, albeit of low quality, suggests that clinicians in Ireland should have the limited option of both nitrous oxide and midazolam, in line with these UK recommendations. As stipulated by the Dental Council of Ireland, and highlighted in each trial reviewed, any dentist practising conscious sedation must have postgraduate training in the technique they are using.

Nevertheless, this review demonstrates the safety of both sedative agents when applied according to the regimens described. This is an important finding, given that the safety profile and efficacy of midazolam is not as well established as nitrous oxide for this cohort of patients.[36] The incidence of adverse effects was low, with no significant difference between groups. Where they did occur, they were considered not serious, self-limiting and not requiring emergency attention.

While not statistically significant, there were some potentially clinically significant differences noted. In one study reviewed here, up to 23% of participants taking midazolam demonstrated disruptive crying or movement, compared to no disruptive behaviour in the nitrous oxide group.[28] Relative to literature-based comparisons, disinhibition or paradoxical reactions are said to occur in 1% of children undergoing midazolam sedation.[36-38] This review also suggests that midazolam required more time than nitrous oxide. The authors claimed that these times were within acceptable limits for both groups, with time spent in recovery being the main reason for such a discrepancy.

Conclusion

This review has highlighted that both midazolam and nitrous oxide can safely support paediatric populations to achieve dental care. Research comparing the effectiveness of nitrous oxide and midazolam as single sedative agents in the paediatric population is sparse, offering weak evidence that nitrous oxide and midazolam are both safe and effective in this age group. There is a need for future research in this area, including well-designed, randomised controlled trials conducted in a community setting with suitably blinded controls. Clinicians have two potentially safe and effective agents that could be applied by an appropriately trained and skilled sedationist with appropriate support for carefully selected patients, if the Dental Council of Ireland Code of Practice supports this.

Conflict of interest

Since authoring this paper, Dr Caoimhin Mac Giolla Phadraig has been co-opted onto the Dental Council of Ireland Review Group to produce guidelines relating to general anaesthesia, conscious sedation and resuscitation/medical emergencies in dentistry. This has not affected his impartiality in following the evidence reviewed or commitments undertaken as part of this group. The authors declare no other conflicts.

References

1. **Irish Oral Health Services Guideline Initiative.** Strategies to prevent dental caries in children and adolescents. University College Cork 2009. p. 8.
2. **Meade, M.J., Millett, D.T.** An audit of the caries status of patients about to start orthodontic treatment. *Journal of the Irish Dental Association* 2011; 57 (3): 156-160.
3. **Porritt, J., Buchanan, H., Hall, M., Gilchrist, F., Marshman, Z.** Assessing children's dental anxiety: a systematic review of current measures. *Community Dentistry and Oral Epidemiology* 2013; 41 (2): 130-142.
4. **Klingberg, G., Berggren, U., Carlsson, S.G., Noren, J.G.** Child dental fear: cause-related factors and clinical effects. *European Journal of Oral Sciences* 1995; 103 (6): 405-412.
5. **Nicolas, E., Bessadet, M., Collado, V., Carrasco, P., Rogerleroi, V., Hennequin, M.** Factors affecting dental fear in French children aged 5-12 years. *International Journal of Paediatric Dentistry*/the British Paedodontic Society [and] the International Association of Dentistry for Children 2010; 20 (5): 366-373.
6. **Kakkar, M., Wahi, A., Thakkar, R., Vohra, I., Shukla, A.K.** Prevalence of dental anxiety in 10-14 years old children and its implications. *Journal of Dental Anesthesia and Pain Medicine* 2016; 16 (3): 199-202.

7. **Locker, D., Liddell, A., Dempster, L., Shapiro, D.** Age of onset of dental anxiety. *Journal of Dental Research* 1999; 78 (3): 790-796.
8. **McGrath, C., Bedi, R.** The association between dental anxiety and oral health-related quality of life in Britain. *Community Dentistry and Oral Epidemiology* 2004; 32 (1): 67-72.
9. **Armfield, J.M., Stewart, J.F., Spencer, A.J.** The vicious cycle of dental fear: exploring the interplay between oral health, service utilization and dental fear. *BMC Oral Health* 2007; 7: 1.
10. **British Society of Paediatric Dentistry**. Non-pharmacological Behaviour Management. 2011.
11. **Dental Council of Ireland**. Code of Practice Relating to the Administration of General Anaesthesia and Sedation and on Resuscitation in Dentistry. Dental Council of Ireland; 2005: p. 1-7.
12. **Lourenço-Matharu, L., Ashley, P.F., Furness, S**. Sedation of children undergoing dental treatment. *Cochrane Database of Systematic Reviews* 2012 (3).
13. **Friend, T., Allen, P**. Prospective study on dental extractions carried out for paediatric patients under general anaesthetic in a district general hospital. *SAAD Digest* 2016; 32: 58-61.
14. **Arch, L.M., Humphris, G.M., Lee, G.T.** Children choosing between general anaesthesia or inhalation sedation for dental extractions: the effect on dental anxiety. *International Journal of Paediatric Dentistry/*the British Paedodontic Society [and] the International Association of Dentistry for Children 2001; 11 (1): 41-48.
15. **Fuhrer, C.T., 3rd, Weddell, J.A., Sanders, B.J., Jones, J.E., Dean, J.A., Tomlin, A.** Effect on behavior of dental treatment rendered under conscious sedation and general anesthesia in pediatric patients. *Pediatric Dentistry* 2009; 31 (7): 492-497.
16. **Scottish Dental Clinical Effectiveness Programme**. *Conscious Sedation in Dentistry*. Dental Clinical Guidance. 2017.
17. **Intercollegiate Advisory Committee for Sedation in Dentistry**. *Standards for Conscious Sedation in the Provision of Dental Care.* The Dental Faculties of the Royal Colleges of Surgeons and the Royal College of Anaesthetists, 2015.
18. **National Institute for Health and Care Excellence**. *Sedation in Children and Young People*. Sedation for diagnostic and therapeutic procedures in children and young people. 2010: p. 1-37.
19. **Quinn, D., Lyne, J., Nunn, J., O'Farrell, M.** The practice of conscious sedation by senior dental surgeons in the Health Board Dental Service in the Republic of Ireland. *Journal of the Irish Dental Association* 2006; 52 (1): 23-27.
20. **Fisher, V., Stassen, L.F., Nunn, J.** A survey to assess the provision of conscious sedation by general dental practitioners in the Republic of Ireland. *Journal of the Irish Dental Association* 2011; 57 (2): 99-106.
21. **McAuliffe, U., Woods, N., Kinirons, M., Harding, M.** A retrospective investigation of the oral health records of a cohort of preschool children who received extractions under general anaesthesia including cost analysis of treatment. *Journal of the Irish Dental Association* 2017; 63 (1): 38-44.
22. **University of York.** Systematic Reviews: CRD's Guidance for undertaking reviews in health care. CRD, University of York: Centre for Reviews and Dissemination; 2008, p. 1-294.
23. **Higgins, J.P.T., Altman, D.G.** Assessing risk of bias in included studies. *Cochrane Handbook for Systematic Reviews of Interventions*: John Wiley & Sons, Ltd; 2008. p. 187-241.
24. **Puhan, M.A., Schünemann, H.J., Murad, M.H., Li, T., Brignardello-Petersen, R., Singh, J.A., *et al*.** A GRADE Working Group approach for rating the quality of treatment effect estimates from network meta-analysis. *British Medical Journal* 2014; 24: 349.
25. **Wilson, K.E., Welbury, R.R., Girdler, N.M.** A randomised, controlled, crossover trial of oral midazolam and nitrous oxide for paediatric dental sedation. *Anaesthesia* 2002; 57(9): 860-7.
26. **Wilson, K.E., Welbury, R.R., Girdler, N.M.** A study of the effectiveness of oral midazolam sedation for orthodontic extraction of permanent teeth in children: a prospective, randomised, controlled, crossover trial. *Br Dent J* 2002; 192 (8): 457-462.
27. **Wilson, K.E., Girdler, N.M., Welbury, R.R.** Randomized, controlled, cross-over clinical trial comparing intravenous midazolam sedation with nitrous oxide sedation in children undergoing dental extractions. *Br J Anaesth* 2003; 91 (6): 850-856.
28. **Wilson, K.E., Girdler, N.M., Welbury, R.R.** A comparison of oral midazolam and nitrous oxide sedation for dental extractions in children. *Anaesthesia* 2006; 61 (12): 1,138-1,144.
29. **Wilson, K.E., Welbury, R.R., Girdler, N.M.** Comparison of transmucosal midazolam with inhalation sedation for dental extractions in children. A randomized, cross-over, clinical trial. *Acta Anaesthesiologica Scandinavica* 2007; 51 (8): 1,062-1,067.
30. **Luhmann, J.D., Kennedy, R.M., Porter, F.L., Miller, J.P., Jaffe, D.M.** A randomized clinical trial of continuous-flow nitrous oxide and midazolam for sedation of young children during laceration repair. *Annals of Emergency Medicine* 2001; 37 (1): 20-27.
31. **Donaldson, D.** Anxiety: its management during the treatment of the adolescent dental patient. *International Dental Journal* 1982; 32 (1): 44-55.
32. **Averley, P.A., Lane, I., Sykes, J., Girdler, N.M., Steen, N., Bond, S.** An RCT pilot study to test the effects of intravenous midazolam as a conscious sedation technique for anxious children requiring dental treatment – an alternative to general anaesthesia. *Br Dent J* 2004; 197 (9): 553-558; discussion 49.
33. **Venchard, G.R., Thomson, P.J., Boys, R.** Improved sedation for oral surgery by combining nitrous oxide and intravenous midazolam: a randomized, controlled trial. *International Journal of Oral and Maxillofacial Surgery* 2006; 35 (6): 522-527.
34. **Al-Zahrani, A.M., Wyne, A.H., Sheta, S.A.** Comparison of oral midazolam with combination of oral midazolam and nitrous oxide inhalation in relation to safety of dental sedation in young children. *Odonto-Stomatologie Tropicale* (*Tropical Dental Journal*) 2011; 34 (135): 33-41.
35. **Coulthard, P., Bridgman, C.M., Gough, L., Longman, L., Pretty, I.A., Jenner, T.** Estimating the need for dental sedation. 1. The Indicator of Sedation Need (IOSN) – a novel assessment tool. *British Dental Journal* 2011; 211 (5): E10.
36. **Papineni, A., Lourenco-Matharu, L., Ashley, P.F.** Safety of oral midazolam sedation use in paediatric dentistry: a review. *International Journal of Paediatric Dentistry/*the British Paedodontic Society [and] the International Association of Dentistry for Children 2014; 24 (1): 2-13.
37. **Gallagher, C.** Benzodiazepines: sedation and agitation. *Dent Update* 2016; 43 (1): 83-6, 89.
38. **Papineni McIntosh, A., Ashley, P.F., Lourenco-Matharu, L.** Reported side effects of intravenous midazolam sedation when used in paediatric dentistry: a review. *International Journal of Paediatric Dentistry/*the British Paedodontic Society [and] the International Association of Dentistry for Children 2015; 25 (3): 153-164.

Analysis of risk factors for cluster behaviour of dental implant failures

Chrcanovic, B.R., Kisch, J., Albrektsson, T., Wennerberg, A.

Background: Some studies have indicated that implant failures are commonly concentrated in few patients.
Purpose: To identify and analyse cluster behaviour of dental implant failures among subjects of a retrospective study.
Materials and methods: This retrospective study included only patients receiving at least three implants. Patients presenting at least three implant failures were classified as presenting a cluster behaviour. Univariate and multivariate logistic regression models and generalised estimating equations analysis evaluated the effect of explanatory variables on the cluster behaviour.
Results: There were 1,406 patients with three or more implants (8,337 implants, 592 failures). A total of 67 (4.77%) patients presented cluster behaviour, with 56.8% of all implant failures. Antidepressant use and bruxism were identified as potential negative factors exerting a statistically significant influence on a cluster behaviour at the patient level. The negative factors at the implant level were turned implants, short implants, poor bone quality, age of the patient, intake of medicaments to reduce gastric acid production, smoking, and bruxism.
Conclusions: A cluster pattern among patients with implant failure is highly probable. Factors of interest as predictors for implant failures could be a number of systemic and local factors, although a direct causal relationship cannot be ascertained.

Clinical Implant Dentistry and Related Research 2017; 19 (4): 632-642.

Quantification of facial and smile aesthetics

Koidou, V.P., Chatzopoulos, G.S., Rosenstiel, S.F.

Statement of problem: Whether deviations in alignment discrepancy, width-to-length ratio, application of the golden proportion, or number of teeth revealed in the smile affect attractiveness is yet unknown.
Purpose: The purpose of this analytical study was to quantify dental and facial aesthetics to determine whether individuals identified as having superior smiles display differences: in alignment discrepancies (angulation between interpupillary and commissure line); width-to-length ratios of maxillary anterior teeth; application of the golden proportion (approximately 1.618:1); and, number of teeth revealed in an animated smile when compared with an average population.
Material and methods: An internet search for "best smile" and "celebrity" identified 108 celebrities. Photographs showing smiles within 10 degrees of a frontal view were collected, while photographs of dental students were used for the control group. Alignment discrepancies, widths and lengths of the anterior teeth, and number of teeth revealed in an animated smile were measured with photo-editing software, and ratios were calculated. The groups were compared with repeated measures: ANOVA; the Mann-Whitney U test; and, the Wilcoxon signed-rank test (a=0.05).
Results: Usable photographs were obtained for 90 celebrities (58 women, 32 men) and compared with photographs of 97 dental students (54 women, 43 men). Statistically significant differences were found for alignment discrepancies (celebrities 0.97, students 1.25, P=0.034) and for the number of teeth displayed (P=0.049). Some 22.2% of the celebrities revealed 12 teeth, versus 6.2% of the students. In both groups, significant differences from the golden ratio (1.618:1) for the width of the central incisor/lateral incisor right and left, and for the width of the lateral incisor/canine right and left, were observed through 95% confidence intervals. Sex and left-right were non-significant factors.
Conclusions: Celebrities identified as having a superior smile had smaller mean alignment discrepancies and revealed a greater number of teeth in an animated smile than dental students.

Journal of Prosthetic Dentistry 2018; 119 (2): 270-277.

Is metal particle release associated with peri-implant bone destruction? An emerging concept

Fretwurst, T., Nelson, K., Tarnow, D.P., Wang, H.L., Giannobile, W.V.

Peri-implant diseases affecting the surrounding structures of endosseous dental implants include peri-implant mucositis and peri-implantitis. The prevalence of peri-implantitis ranges between 15% and 20% after 10 years, highlighting the major challenge in clinical practice in the rehabilitation of dental implant patients. The widespread nature of peri-implant bone loss poses difficulties in the management of biological complications affecting the long-term success of osseointegrated implant reconstructions. Metal and titanium particles have been detected in peri-implant supporting tissues. However, it remains unclear what mechanisms could be responsible for the elicitation of

QUIZ ANSWERS

1. Alveolar fracture.
2. Manual repositioning or repositioning with a forceps of the displaced segment. The segment should then be splinted with a flexible splint for four weeks.
3. Soft food for one week. Maintain good oral hygiene. Rinse with 0.1% chlorhexidine.
4. Splint removal and clinical and radiographic follow-up at four weeks. Clinical and radiographic follow up at six to eight weeks, four months, six months, one year, and then yearly for five years.

(questions on page 62)

particle and ion release, and whether these released implant-associated materials have a local and/or systemic impact on the peri-implant soft and hard tissues. Metal particle release as a potential aetiologic factor has been intensively studied in the field of orthopaedics and is known to provoke aseptic loosening around arthroplasties and is associated with implant failures. In dental medicine, emerging information about metal/titanium particle release suggests that the potential impact of biomaterials at the abutment or bone interfaces may have an influence on the pathogenesis of peri-implant bone loss. This mini review highlights current evidence of metal particle release around dental implants and future areas for research.

Journal of Dental Research 2018; 97 (3): 259-265.

A force on the crown and tug of war in the periodontal complex

Jang, A.T., Chen, L., Shimotake, A.R., Landis, W., Altoe, V., Aloni, S., et al.

The load-bearing dentoalveolar fibrous joint is composed of biomechanically active periodontal ligament (PDL), bone, cementum, and the synergistic entheses of PDL bone and PDL cementum. Physiologic and pathologic loads on the dentoalveolar fibrous joint prompt natural shifts in strain gradients within mineralised and fibrous tissues, and trigger a cascade of biochemical events within the widened and narrowed sites of the periodontal complex. This review highlights data from *in situ* biomechanical simulations that provide tooth movements relative to the alveolar socket. The methods and subsequent results provide a reasonable approximation of strain-regulated biochemical events resulting in mesial mineral formation and distal resorption events within microanatomical regions at the ligament-tethered/enthesial ends. These biochemical events, including expressions of biglycan, decorin, chondroitin sulfated neuroglial 2, osteopontin, and bone sialoprotein and localisation of various hypertrophic progenitors, are observed at the alkaline phosphatase-positive-widened site, resulting in mineral formation and osteoid/cementoid layers. On the narrowed side, tartrate-resistant acid phosphatase regions can lead to a sequence of clastic activities resulting in resorption pits in bone and cementum. These strain-regulated biochemical and subsequently biomineralisation events in the load-bearing periodontal complex are critical for maintenance of the periodontal space and overall macroscale joint biomechanics.

Journal of Dental Research 2018; 97 (3): 241-250.

SITUATIONS WANTED

Locum with 30 years' experience available from late April, preferably in Meath, Dublin, Louth area. Can provide medical aesthetics if required. Email oakleypark1@eircom.net.

Cork-trained dentist seeks full/part-time position in Co. Waterford/east Cork/south Tipperary following recent return to area. Over ten years' experience in Ireland and UK. Email dentistwd@gmail.com.

SITUATIONS VACANT

Associates

Associate required for busy, modern practice in Limerick. Modern practice with a friendly and experienced staff. Please email your CV to racefielddental@gmail.com.

Associate required for very busy practice group in west Co. Dublin area. This is a superb learning environment, CBCT, Cerec, full-time orthodontist, periodontist, implantologist. Exceptional support staff. Excellent remuneration for the appropriate candidate. Email dentistrequired2439@ gmail.com.

Part- or full-time associate dentist required for busy modern dental surgeries in Co. Cavan. One hour from Dublin. 50% remuneration. OPG, hygienist, orthodontist, periodontist. Please send CV to info@virginiadentalsurgery.com.

Dental associate wanted part time for busy, modern Co. Galway practice, 30 minutes from Galway City. Private and medical card. Send CV and references to cogalwaydental@hotmail.com.

Modern dental practice in Limerick is looking for an experienced, enthusiastic associate dentist for busy clinic. Please forward CV to info@no8clinic.ie.

Highly motivated, passionate dental associate required for part-time position. Minimum two years' experience. High-level endodontic and prosthodontic services. Modern facility with all necessary equipment. Please email CV to info@cleardentalcare.ie.

Advertisements will only be accepted in writing via fax (01-295 0092), letter or email (fionnuala@irishdentalassoc.ie). Non-members must pre-pay for advertisements, which must arrive no later than **Friday, May 11, 2018**. Classified ads placed in the *Journal* are also published on our website www.dentist.ie for 12 weeks. **Please note that all adverts are subject to VAT at 23%.**

Advert size	Members	Non-members
up to 25 words	€80	€160
26 to 40 words	€95	€190

The maximum number of words for classified ads is 40.
If the advert exceeds 40 words, then please contact:
Think Media, The Malthouse, 537 North Circular Road, Dublin 1.
Tel: 01-856 1166 Fax: 01-856 1169 Email: paul@thinkmedia.ie

Please note that all classified adverts MUST come under one of the following headings:

- Positions Wanted
- Positions Vacant
- Practices for Sale/To Let
- Practices Wanted
- Equipment for Sale/To Let

Classified adverts must not be of a commercial nature. Commercial adverts can be arranged by contacting Paul O'Grady at Think Media.

Associate dentist required for busy, multi-surgery, private Dublin 4 clinic with CEREC. Initially 12 hours Tuesdays and Thursdays 2.00pm-8.00pm, with view to building a full appointment book. Fluent English and minimum three years' experience essential. Facial aesthetics experience desirable. Email d4dentalclinic@gmail.com.

Associate needed in Dover, Kent. Looking for someone for two to four days per week (Monday and Tuesday, Friday and Saturday), 3000-4000 UDAs (£10 per UDA), 50/50 private and lab, starting work end of March/beginning of April 2018. Established patient list. Email admin@butehousedental.co.uk.

Enthusiastic associate with general practice experience required for modern family practice in Westmeath. 30 minutes from M50. Two- to three-day week initially with potential for growth. Mix of private/GMS. IDC registration. Send CV to dentalopp2018@gmail.com.

Part-time, experienced associate required for Thursday, Friday and Saturday in a busy modern practice in Dublin 24. Please email CV to managerdentalpractice@ hotmail.com.

Associate with orthodontics experience. We are a recently renovated, state-of-the-art dental practice in Limerick. We are looking for an associate with experience in orthodontics to join our wonderful team. For more information email shauna@3dental.ie.

Shields Dental and Implant Clinic seeks experienced associate with advanced clinical training for private practice. Please contact jobs@shieldsdentalclinic.ie.

Part-time associate required for very busy south east practice. Fully computerised. Full support staff. Private and GMS mix. Reply to catriona7339@gmail.com.

Experienced associate dentist required for our great team in Ranelagh, Dublin 6. Busy multidisciplinary practice, three days to include Saturday with view to more days. Strong list with plenty of scope for growth. Email peter@beechwooddental.ie.

Associate wanted to join hi-tech, beautiful practice in south Mayo. Digital radiography, computerised, intra-oral cameras, etc. Would suit part-time initially with large growth potential. Open to new graduates, or those returning to practice. Email obeirne1@hotmail.com.

Associate required for maternity cover initially in newly refurbished and busy practice in Greystones, Co. Wicklow, with the option to stay on permanently. Email careers@dentalcareireland.ie.

Dentists

Experienced dentist required for busy, modern Killaloe practice. Starting February 2018, one-day week, Fridays. Please email CV to Joe@networksolutions.ie or call 087-233 3053. We do not require the assistance of recruiters for this role.

Dentist required for holiday leave first two weeks of April in Carndonagh, Co. Donegal. Help given with accommodation. Must be to willing to work. Possible future position for the right person. CV to donegaldental@yahoo.ie.

South West Acute Hospital, Enniskillen Ref No: 74828022 Clinical Dental Officer. For full criteria, job description and application form for the above please visit www.hscrecruit.com. We are an equal opportunity employer. Email Gemma.Dobbs@westerntrust.hscni.net

Great James Street Health Centre, Derry (may vary). Ref No: 74838002 Clinical Dental Officer (Part Time). For full criteria, job description and application form for the above please visit www.hscrecruit.com. We are an equal opportunity employer. Email Gemma.Dobbs@westerntrust.hscni.net

Now recruiting hardworking and enthusiastic general and specialist dentists to join our dedicated teams in Munster. 2018 award winners: best treatment of nervous patients, best patient care, best employee, best new practice. Email jobs@alexandradental.ie.

Full-time dentist required for new clinic in Co. Limerick. The candidate should be hardworking, motivated and willing to grow with the clinic. Managed by an experienced team that has a very busy clinic in Limerick City. Email jennifer.bowedental@gmail.com.

Experienced, friendly dentist required for busy computerised practice in Athlone. Mondays 1.00pm-7.00pm. Also some Saturdays and some locum days in June/July. Send CV to reception@mearesdental.ie.

Dentist needed full-time in northern Saskatchewan and Alberta, Canada, under a 24-month contract. Immigration sponsorship available. Canadian National Dental Board Certificate required. Email northerndentalcentre@gmail.com.

Part-time dentist wanted for busy practice on Wicklow/Kildare/Carlow border. Sessions available Mondays and Thursdays. Computerised, digital x-rays. Candidate will need some experience as single-surgery practice. Email ldental99@yahoo.ie.

Two experienced, enthusiastic dentists required to join our new, modern dental clinic in Dublin 1. Also looking for someone with an interest in facial aesthetics. Email diamondsmiledentalclinics@gmail.com.

Limerick – Smiles Dental is looking for a general dentist ideally with special interest to join our well established, state-of-the-art practice in Limerick. Initially three days per week with potential to increase. Candidates must be DCI registered. Email joanne.bonfield@smiles.co.uk.

Excellent opportunity for enthusiastic, outgoing general dentist to join our team. Full-time position in a modern, bright surgery located in Co. Meath. Email careers@dentalcareireland.ie.

Drogheda – Smiles Dental has an exciting opportunity for an enthusiastic, passionate dentist to join our well-established, well-equipped, fully computerised practice in Drogheda. Candidates must be experience and DCI registered. Position offers five days per week. Email joanne.bonfield@smiles.co.uk.

Waterford – Smiles Dental has an exciting opportunity for an enthusiastic, passionate dentist to join our modern, well-established, well-equipped and fully computerised practice in Waterford. Candidates must be DCI registered. Position offers five days per week. Email joanne.bonfield@smiles.co.uk.

Would you like to work in a not-for-profit, ethical social enterprise providing high-quality dental services across beautiful South Hampshire? SCA Trafalgar's six practices have fully equipped surgeries with rotary endo, digital cameras, full clinical freedom and good clinical support. Contact Stacey.ball@scagroup.co.uk.

Specialist/limited practice

Specialist orthodontist required in Castlebar, Co. Mayo and Tullamore, Co. Offaly. Can be flexible with hours/days. Modern, computerised practices with excellent support staff. Email careers@dentalcareireland.ie.

Periodontist required to join our advanced restorative team at Shields Dental and Implant Clinic. Part-time. Reply to jobs@shieldsdentalclinic.ie.

Visiting specialist orthodontist needed for busy five-surgery general practice in Tuam, Co. Galway. Fully computerised: Exact, Sirona Orthophos 3DXG, CEREC Ortho. Five primary and four secondary schools in the town. Motorway directly to Tuam. Call or email manager.abbeydent@gmail.com to discuss.

Orthodontist – Smiles Dental is looking for a motivated specialist orthodontist to join our well-established, busy Donnybrook practice in Dublin. Practices offer modern, state-of-the-art working environment and full support teams. Three days: Tuesday, Wednesday and Saturday. Email joanne.bonfield@smiles.co.uk.

Specialist orthodontist required in Limerick. We are a recently renovated, state-of-the-art dental practice in Limerick. We are looking for a specialist orthodontist to join our wonderful team. For more information email shauna@3dental.ie.

Periodontist wanted for one day per month in a busy practice in Ennis, which is fully computerised, digital x-rays, OPG, three dentists, two hygienists, central location and experienced staff. Contact Ger at gbrowne.ennis@gmail.com.

Part-time implant specialist required for busy dental surgery in Cavan town. One hour 15 minutes from Dublin. OPG, hygienist, orthodontist. Please send CV to info@farnhamdentalsurgery.com.

Implant surgeon – BUPA Dental Care is looking for an implant surgeon to join our well-established Blueapple Dental Care in Belcoo, Northern Ireland. Currently 200-300+ implant placements per annum from simple to full rehabilitation. Three to four days per week. Email joanne.bonfield@bupadentalcare.co.uk.

Implant specialist and endodontist/dentist with interest in endodontics part-time required in Dublin dental clinic. Please send CV to dublindental@yahoo.com.

Endodontist required for a high-profile specialist practice in north Dublin. Applications are invited by email to lisa@ncdental.ie.

Endodontist wanted for busy dental practice in Tralee, Co. Kerry. Please contact Hannah Flynn on 087-654 6898 or email info@flynnsdentalcare.ie.

Dental nurses/managers/receptionists

Newbridge. Full-time experienced dental nurse required Mon-Fri to start ASAP. Friendly team. Email 999kayoung@gmail.com.

Practice manager/receptionist. Full-time, permanent role available for a well-organised, motivated, customer-oriented team member in a long-established family practice. Email reception@oranmoredentalcare.com.

Full-time dental nurse required in a busy dental practice in Cavan Town. Full qualifications required. Immediate start. Email info@ndentalclinic.com.

Qualified dental nurse required for specialist periodontal practice in Galway City. Starting March/April 2018. CV to obrienandmolloy@gmail.com.

Kilkenny City. Two full-time dental nursing positions available to cover maternity leave in a busy practice with possible job opportunity to follow. Please send CVs via email ayrfielddentalpractice@gmail.com.

Experienced dental nurse/receptionist required for D12 private general dental practice (no GMS). Must be kind-natured and hardworking. May suit either two part-time or one full-time person. Replies with CV to dentalnurseandreceptionist@gmail.com.

Experienced dental nurse required for new orthodontic practice in Raheny. Position is part time. There is scope for excellent career development. Reply with CV to Amy@rahenyortho.ie.

Dental nurse needed for specialist dental practice in Swords. We are looking for a person with good interpersonal qualities and excellent communication skills. Full-time position but part-time hours will be considered. CV to Brenda at swordsorthoinfo@gmail.com.

Part-time dental nurse/dental hygienist and full-time dental technician positions are needed for practice based in Dunboyne. Experience essential. Immediate start. Email dublinmeath@gmail.com.

Dental nurse required to cover maternity leave, two days per week, in New Ross, Co. Wexford. CV to info@rogersdental.ie.

Midlands-based specialist orthodontic practice seeking a hardworking, flexible and enthusiastic individual to join a vibrant team. The ideal candidate will have a dental nurse qualification, good interpersonal qualities and excel in providing professional patient care. Email info@acebraces.ie.

Hygienists

Hygienist required in Sutton. Thursday, 10.00am-8.00pm. Other days as required by agreement. Please send CV with references to redmonddental@gmail.com.

Full-time/part-time/locum hygienist required in Athlone. Brand new, modern, computerised surgery. New Cavitron touch and dental chair. Full book. Must be enthusiastic and friendly. Email reception@mearesdental.ie.

Dundalk – Smiles Dental is looking for an enthusiastic hygienist to join our modern, well-equipped, well-established practice in Dundalk. Position offers two to three days per week. Candidates must be DCI registered. Email joanne.bonfield@smiles.co.uk.

Dental hygienist required for high-profile specialist practice in North Dublin. Applications are invited by email to lisa@ncdental.ie.

Sligo. Hygienist position available due to colleague emigrating. Private clinic. Full appointment book. High gross. Four to five days per week. Open to new graduates. Email Sligodentaljob@gmail.com.

Enthusiastic dental hygienist required for modern, busy dental practice in the heart of Dublin city. Lovely patient base. Currently for Wednesday and Thursday but with an opportunity to increase. Please send your CVs and references to bdentald2@gmail.com.

Qualified and experienced dental hygienist required for a busy computerised practice. This position is for Tuesdays only, flexible hours. Please email CV with references to hello@ballybrackdental.ie.

Hygienist(s) required from April, busy practice, Stoneybatter. Daily clinics, days to suit. Up to 7.00pm some evenings. Initially covering maternity leave, but longer-term position is also available. Please send CV to onemanorplace@eircom.net.

Friendly, qualified and experienced hygienist for computerised general dental practice in Sandyford. Position is for Monday, Wednesdays and Thursdays. CV to blackglendental@gmail.com.

Full-time hygienist position available at Cleary FitzGerald Dental Practice, Sligo. Contact 071-914 3927.

Hygienist required full time for a busy midlands practice. Salary based, excellent opportunity. Email dentistrequired2439@gmail.com.

Colm Smith Dental requires a full/part-time dental hygienist due to a departing colleague. Long established 11-surgery award-winning multidisciplinary practices, consultant/specialist orthodontists, specialist oral surgeon and excellent support staff. Email drcolmsmith@gmail.com.

Dental hygienist required two days per week for busy Co. Meath practice. Saturdays essential. Good mix of private, PRSI and periodontal patients. Email dentalpracticemeath@gmail.com.

Dental hygienist required for Shields Dental and Implant Clinic. Part-time, flexible. Please contact jobs@shieldsdentalclinic.ie or call 061-480070.

PRACTICES FOR SALE/TO LET

Dental surgery for sale Co. Kildare. Freehold/leasehold. Mixed practice. One surgery, room for expansion. OPG. I/O camera. Digital x-rays. Sterilisation room. Very busy. Email dentalsurgerysale1@gmail.com.

Dental practice for sale/to let in Kilmainham, D8. Large footfall, leasehold. Flexible terms regarding start and payment options. Email dentalpracticeforsale631@gmail.com.

Long-established Dublin city centre practice for lease; street level; 90 square metres; viewing worthwhile. Email selfligating@gmail.com.

Long-established dental practice for sale, 40 minutes from Dublin. Good support staff, computerised. Email dentalpractice71@gmail.com.

South Dublin. Excellent location beside shopping centre and M50, several GP practices and pharmacies nearby. Freehold, two surgeries and OPG. Very long-established, busy practice, private and PRSI. Owner retiring. Great scope for enthusiastic practitioners. Overhead accommodation. Email tom.madigan@madiganaccountants.ie.

Practice for sale, Dublin city centre. Busy, two-surgery practice. Good location, high footfall. Parking nearby. Two well-equipped surgeries. Digital OPG, low rent, experienced staff, fully walk-in, strong new patient numbers. Email dublinsale1@gmail.com.

South west. Well-established, modern, custom-built surgery. Excellently equipped, ample room to expand. Experienced staff. Medical card low. New patient numbers high. Ready for speedy sale. Prime location. Flexible property options incl. leasehold. Contact: practicesouthwestforsale@yahoo.com.

EQUIPMENT FOR SALE

Sirona Orthophos XG-3D-ready OPG for sale. Fully digital machine and only four years old. Perfect condition and very reliable. Excellent image quality. Upgradeable to CBCT. Includes settings for paediatric usage. Email info@riverpointdentalclinic.ie.

CLINICALLY PROVEN **LONG-LASTING** PAIN RELIEF[1,2] **FROM THE FIRST USE**[*,2,3]

FOR A LIFE WITHOUT LIMITATIONS

HELP YOUR SENSITIVITY PATIENTS ENJOY LIFE WITH COLGATE® SENSITIVE PRO-RELIEF™

- Repairs sensitive areas of the tooth with Pro-Argin® technology[4]
- Great taste for better compliance
- Recommended fluoride level for caries management[5]

Colgate

YOUR PARTNER IN ORAL HEALTH

www.colgateprofessional.ie

Irish Dental Association approved

References:
1. Docimo R *et al. J Clin Dent* 2009; (Spec Iss A): 17-22. **2.** Hamlin D *et al. Am. J of Dent* 2009; 22 (Spec Iss A): 16A-20A. **3.** Nathoo S *et al. J Clin Dent* 2009; 20 (Spec Iss): 123-130. **4.** Petrou I *et al. J Clin Dent* 2009; 20 (Spec Iss): 23-31. **5.** Recommended fluoride level (1350-1500ppm) for caries prevention in 'Delivering better oral health. An evidence-based toolkit for prevention' 3rd edition, Public Health England, June 2014. * When toothpaste is applied directly to each affected tooth for one minute.

Standing up for colleagues and patients

From judging the Sensitive Dentist of the Year Awards to advocating for associates, Dr Jennifer Collins' involvement in the IDA has been pretty varied.

What led you to first get involved in the IDA?

I qualified in the UK and returned to Ireland in 2008. I had very few dental colleagues in Ireland, so I joined the IDA with the intention of meeting new people and also meeting my educational needs.

What form did that involvement take?

I began by attending Metro Branch meetings and loved them. I quickly found myself meeting lots of friends and allies, and learning a lot about dentistry in Ireland. I also served on the Metro Branch Committee for two years. That was a fantastic experience, and gave me a real insight into the workings of the IDA. I really enjoyed organising meetings and liaising with sponsors, and it gave me a great sense of achievement seeing these events coming to fruition and getting all the positive feedback.

What is your involvement now?

I stepped back from Committee work for a while when my children came along, but I still go to meetings and always attend the Annual Conference. Last year I was asked to join the judging panel for the Sensodyne Sensitive Dentist and Dental Team of the Year Awards. It was a role I relished and an amazing experience, culminating in a very enjoyable night at the awards ceremony. It was lovely to be part of it.

I also recently became a member of the GP Committee, so I'm getting stuck into that role at the moment. For me it's about being an advocate for the associate dentist, who is often quite vulnerable in dentistry, and particularly for female associates. We can be an underrepresented group, and we have challenges that are unique to us, especially around maternity leave and issues like that, which I have experienced first hand.

What has your involvement in the IDA meant to you?

I'm a huge advocate of the IDA and really love being a member. We're stronger together – the more people who are members, the better our representation. I see the team in IDA House as friends now, as I've spoken to them so often over the years. When you take a break from dentistry, on maternity leave or for whatever reason, you may not meet any other dentists in that time, so I found the IDA superb. The HR Department has been particularly great. It's really nice to have that bank of knowledge there, and to know you can pick up the phone and someone is always going to talk to you, reassure you and put you at ease. They work tirelessly on behalf of dentists and I don't think people appreciate the work that they do.

What has been the single biggest benefit of IDA membership for you?

The CPD and education are hugely helpful, and the social network element too, but it's the IDA's advisory role that I have personally gotten the most benefit from. Getting professional, confidential advice, whenever you need it and on whatever topic, has been a huge help.

How would you like to see the Association progress into the future?

I would love to see the IDA continue its good work, especially at the moment lobbying the Government on behalf of dentists.

I would also like to see the Association become more involved in social projects. For example, there's a lot of talk of late about autism awareness, and that's something close to my heart. Often dentists don't know how to manage adults or children with autism. They want to help but don't know how. I'd love to see the IDA back a project – perhaps a document – that would help educate dentists on how to manage children and adults with autism and help their families. Education is key for all of us.

Jennifer is a general dentist based in Dublin 2. As a mum of three children under five, two girls and a boy, she doesn't have much in the way of free time, but when she does, she enjoys pilates and running. She's also recently started a weekly blog about dentistry – www.jcdentistry.ie.

Dental Protection

WORLD-CLASS DEFENCE TO HELP PROTECT YOU AND YOUR REPUTATION

- Help with complaints procedures, inquests, inquiries and Dental Council hearings.
- Assistance with disciplinary proceedings relating to your clinical practice.
- Personalised dentolegal advice.
- Risk management support delivered by the experts.
- The right to request protection for clinical negligence claims.

FIND OUT MORE

dentalprotection.org/jda

WHEN YOUR PATIENTS NEED INTENSIVE TREATMENT FOR GINGIVITIS.

ACTS IN 30 SECONDS, LASTS FOR UP TO 12 HOURS[1,2]

Corsodyl 0.2% w/v Mint Mouthwash
Chlorhexidine Digluconate

Recommend Corsodyl treatment mouthwash to treat gum problems:

BLEEDING GUMS **IRRITATED GUMS** **MOUTH ULCERS**

Product Information: Please consult the summary of product characteristics for full product information.

Indications: Plaque inhibition; gingivitis; maintenance of oral hygiene; post periodontal surgery or treatment; aphthous ulceration; oral candida. **Dosage & Administration:** Adults and children 12 years and over: 10 ml rinse for 1 minute twice daily or pre-surgery. Soak dentures for 15 minutes twice daily. Treatment length: gingivitis 1 month. Ulcers, oral candida: continue treatment 48 hours after clinical resolution. Children under 12: on healthcare professional advice only. **Contraindications:** Hypersensitivity to Chlorhexidine or any of the excipients. **Precautions:** Keep out of the eyes and ears, do not swallow. Separate use from conventional dentifrices (e.g. rinse mouth between applications). In case or soreness, swelling or irritation of the mouth cease use of the product. Macrogolglycerol Hydroxystearate may cause skin reactions. Aniseed Mouthwash: Azo dye Ponceau 4R (E124) may cause allergic reactions. **Side effects:** Superficial discolouration of tongue, teeth and tooth coloured restorations, usually reversible; transient taste disturbances and burning sensation of tongue on initial use; irritative skin reactions; extremely rare, generalised allergic reactions, hypersensitivity and anaphylaxis, oral desquamation and parotid swelling. Overdose: Due to alcohol content (7%) ingestion of large amounts by children requires medical attention. **Legal Classification:** GSL. **Product Authorisation Numbers:** PA 678/2/2 & PA 678/2/4. **Product Authorisation Holder:** GlaxoSmithKline Consumer Healthcare (Ireland) Limited, 12 Riverwalk, CityWest Business Campus, Dublin 24. **Date of Preparation:** May 2016. Further information is available on request. **References. 1.** Jones CG. Periodontology 2000. 1997; 15: 55-62. **2.** Gomes BP et al. Int Endod J 2001; 34(6): 42-48.