

BDJ Team

OCTOBER 2014

Radiation protection in dental X-ray surgeries

BDA
British Dental Association

October 2014

**CORE
CPD:
ONE HOUR**

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Rotting teeth? No problem, take a dose of radiation.

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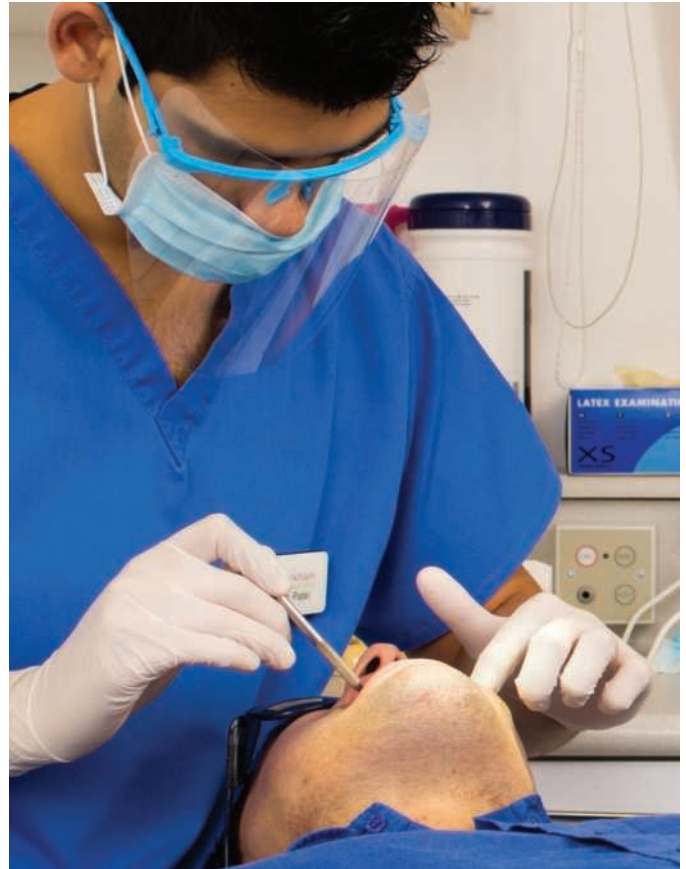
Diagnosis, treatment planning and managing restorative aspects of oral cancer

Craig Barclay

Consultant in Oral Rehabilitation/ Honorary Senior Lecturer in Restorative Dentistry, University of Manchester Dental Hospital

Mike Lewis

Professor of Oral Medicine, School of Dentistry, Cardiff University



LEEDS | Friday 28 November 2014

LONDON | Friday 6 March 2015

6 hours

verifiable CPD

CORE

Learning objectives

- To be aware of risk of mouth cancer and how to spot it
- To deal with mouth cancer and potentially malignant conditions
- To manage oral cancer patients in primary care
- To ensure rehabilitation of oral cancer patients.

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**CORE
CPD:
ONE HOUR**

Ed's letter

Radiation in the surgery:
a core CPD article p 13



Patient confidentiality p 21

Why is dental erosion on the
increase? p 18

Welcome to the October issue of *BDJ Team*! This is the eighth online issue of *BDJ Team* so far, which means **eight free hours of CPD** are now available on our CPD site, www.nature.com/bdjteamcpd.

Over 2,000 dental care professionals (DCPs) have now signed up for *BDJ Team* CPD and are working their way through the multiple choice questions. If you're looking for the CPD **articles**, they are all listed on this page of the website: www.nature.com/bdjteam/cpd.

Have you requested access to our free CPD but are having difficulties activating your account? Then just email me and I'll help you out! To request free access to *BDJ Team* CPD, visit <http://www.nature.com/bdjteamcpd/request-for-access>.

Special announcement

I am pleased to announce that we have decided to extend our free CPD offering into 2015! In 2015, we will offer another **ten free hours of verifiable CPD**. This means that all in all, you can tot up **20 free hours of CPD** through reading articles in *BDJ Team*. Many of these hours will also be on **core topics** recommended by the GDC.

But of course *BDJ Team* is not all about CPD! This October issue looks at dental erosion, the latest dentistry news, patient confidentiality, and a new group of *BDJ Team* readers tell us about themselves in Flash Interviews.

If you have any suggestions for future content or would like to contribute, drop me a line any time!

Kate

Kate Quinlan
Editor
k.quinlan@nature.com



Superstar DCPs! p 23



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THE TEAM

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SURVEY SAYS DENTAL NURSES ARE AT HIGH RISK OF SHARPS INJURY

Just over half of dental nurses in the UK and the Republic of Ireland have had a needlestick injury at some stage in their career.

This is a finding of a survey conducted by the British Association of Dental Nurses (BADN) in conjunction with Initial Medical, healthcare waste management experts. The survey was conducted online between June-August 2014 and received 1,216 responses.

Of those who said they'd received a needlestick injury, 60% said they'd received more than one, with 11% saying they'd been injured in the past year. In terms of when their injury occurred, 41% of respondents who had had a sharps injury said their last injury had happened after use, before disposal.

Encouragingly, 97.4% of those who'd received an injury knew what steps to take. Out of all survey respondents, 52% rated

their needlestick injury training as very good, with 29% rating it good. Interestingly, 21% of UK respondents said that since the Health & Safety (Safe Instruments in Healthcare) Regulations 2013 came into force, their practice had not put in place new safety procedures or safety devices.

Of those who had had an injury, 1.24% said they'd acquired a blood-borne virus as a result.

Rebecca Allen, category manager for Initial Medical, said: "The risk of infection following a needlestick injury is estimated to be one in three for HBV, one in 30 for HCV and one in 300 for HIV for healthcare workers worldwide, so it is vital that best practice is followed. If you don't feel like you have had appropriate sharps safety training or you don't feel the right procedures are being followed, then it is imperative you make this known within your practice"

Diary

Top Tips for Dental Care Professionals (Symposium)

For all dental care professionals

Date: 1 November 2014

Venue: Royal College of Physicians and Surgeons of Glasgow

<http://www.bsdht.org.uk/res/top%20tips%20dentistry%20poster.pdf>

Top%20tips%20dentistry%20poster.pdf

Local Anaesthetic Update in Theory and Techniques

Date: 4 November 2014, 9 am

Venue: Wrexham Medical Institute

Telephone: 01745 534430

Email: sandomtf@cardiff.ac.uk

www.walesdeanery.org/dental

BSDHT Oral Health Conference

Competence, confidence and clarity

Date: 21-22 November 2014

Venue: ACC, Liverpool

http://www.bsdht.org.uk/OHC_214_LANDING_PAGE.html

Periodontology: Non-Surgical Periodontal Therapy

Date: 28-29 November 2014

Venue: UCL Eastman Dental Institute

[http://www.badt.org.uk/events/downloads/Periodontology\(1\).pdf](http://www.badt.org.uk/events/downloads/Periodontology(1).pdf)

Implant Maintenance with Charlotte Curran

Date: 28 November 2014

Venue: Compass Building, Enderby, Leicester

<http://www.dental-education.co.uk/locations/view/124>

SDCEP Guidelines on Periodontal Treatment: NHS Education for Scotland

Date: 2 December 2014, 1 pm

Venue: Centre for Health Science, Inverness

<https://portal.scot.nhs.uk/>



BAKE OFF CONTESTANT APPEARS IN BDJ

This is an excerpt from an interview with Deborah Manger, Deputy

Medical Director and Specialist in Special Care Dentistry at Northamptonshire Healthcare Foundation Trust, and former contestant on *The Great British Bake Off* 2013 on BBC2.

I get up at 6.25 am at home in Oundle, Northamptonshire. After a shower I eat breakfast in the kitchen with my son: either Special K, toast (homemade bread) and jam (homemade), or eggs, with coffee.

I drive the 27 miles to work and usually drop my 16-year-old son off at school. I work full time, theoretically for 40 hours, but often more than this as the Deputy Medical Director duties add a significant workload. I work clinically in Wellingborough or Kettering Tuesdays, Fridays and occasional Thursdays. The rest of my time is spent on wider Trust issues related to services within other adult services, eg dietetics, palliative care, community elderly care services, community nursing, or podiatry.

My current role is testing but completely enjoyable. The Trust is keen to lead innovative, integrated services and I am pleased to have a role that can influence that. My role has enabled me to showcase the dental services and the very able specialists and senior dentists.

The role of Deputy Medical Director requires me to represent the Trust and the wider services, while still retaining my clinical skills and leadership of the dental service. It involves having an understanding of healthcare in its broadest sense; my public health knowledge and understanding is important for this. Currently I am involved in developments that should see the county providing integrated care pathways in partnership across all providers, on budget. It is a task that all the NHS leaders in the county do not underestimate but are all dedicated to achieving.

When I was at school, I was quite fickle when making my career choice. For some time I thought I would do dietetics or catering and my A levels included home economics. In 2012, I decided to enter *The Great British Bake Off* (GBBO) as it looked like fun. One evening while watching it I suggested that I would

be capable of doing the tasks the contestants were given and the retort from my family was 'apply'. There was also an element in me of I would hate to look back and think 'I should have applied'.

I submitted my written application in October 2012. There were lots of questions to answer about your skills and history of baking, and you are asked to submit pictures of your baking. If you are lucky, you then have a telephone interview. If the telephone interview is successful you are invited to show your baking skills and have a face to face interview with the home economists from the production team. My understanding is after this the selection process varies for individuals. For me I then attended a 'bake off' in London and had an interview with the judges, Paul Hollywood and Mary Berry. Following that I was asked to provide referees. It was several weeks before I knew I was through.

We were given about a month to provide recipes for signature and showstopper bakes for nine programmes; the final programme challenges were not declared until about week 7. Any baking I did reflected the challenges we had been set.

Baking and being filmed in the famous GBBO tent was exciting and stressful. The tent was full of people making movement difficult at times. The equipment and facilities are not always ideal, and above all the timeframes for the bakes are very tight. All of this lends itself to the dramas you see unfold onscreen. Everyone in the tent can bake well; it is the additional issues that ensure the viewing public see some drama!

Working full time, practising and participating in the show was extremely tiring, but I felt sufficiently prepared for the baking tasks and challenges. We attended the tent two days every week, usually at the weekend. We had to be in our transport from the accommodation at 5.30 am and often did not return until 8 pm: usually 14 hours on set each day.

My family and colleagues were all very supportive. My colleagues were careful not to ask too many questions as they knew I had signed a confidentiality agreement about the show. My family tried to keep me calm and help where possible. My husband David would stay up with me each evening to help with the practice bakes and to keep the kitchen tidy. We

were eating the products for weeks afterwards and I had to freeze some elements due to the excess baked. You really can have too much cake in the house!

I went out of the competition in week 3. That whole weekend was stressful, and I was quoted in the press as saying it was a 'cascade of misery'. With hindsight I cannot say it was miserable as the production team and other bakers are supportive when someone is having a tough weekend. Mel and Sue (the presenters) also make it their business to keep all the bakers as happy as possible; they are brilliant.

I felt, based on my ability, I could have managed to stay in the competition until at least halfway. That said, you are in a tent with people of equal and better ability. Someone has to go and quite rightly if you have a bad weekend it has to be you. The results are very fair.

If I was able to repeat that round of the competition, I would have slowed down a bit and possibly given myself fewer tasks to do in the time available. I was trying to fit too many skills into the timeframe we had for *petit fours*.

Since appearing on the show, I have been recognised both at work and socially. Patients are often just happy to talk about the Bake Off. It definitely enables them to take their mind off the dentistry!

The whole experience has encouraged me to develop my skills and I cook and bake all the time. I have worked with St Mungo's Broadway charity helping to raise money and teaching simple baking skills to clients at one of their hostels. I have served as a judge at the Northamptonshire Food and Drink Awards 2014 and attended some local schools to do demonstrations. I am considering how I might develop this further in the future.

It is of course important that we eat baked products as part of a balanced meal. The sweet foods I bake are in themselves nutritionally sound; I steer clear of convenience products and colourings. I tend to keep the products lower in sugar than a convenience product would contain. As dental professionals we know that it is the grazing on sweet food and between-meal sweet snacks that is a problem. It is also important to realise that baking is more than just sweet products: I bake breads, savoury pies, savoury scones and biscuits/crackers. My son can make an acceptable loaf of bread as well.

New charity will educate on dental trauma

A new charity is due to launch this November to help educate the public and dental professionals in the management of dental trauma.

Dental Trauma UK has been set up to help improve the care and treatment options for patients following traumatic dental injuries.

According to the charity, too many people are losing teeth unnecessarily after dental trauma, mainly because they are unaware of basic preventive steps to undertake in the aftermath of dental injury, such as re-implanting it, or putting it in milk and seeing a dentist urgently.

Miss Serpil Djemal, Consultant in Restorative Dentistry at King's College Hospital, London, and founder of Dental Trauma UK, said: 'More teeth can be saved if we can better educate the public about what to do in the immediate aftermath of dental trauma injury. We are really excited about getting started'.

Dental Trauma UK will work to raise awareness among the general public, but also those who are often 'first on the scene' when dental injury occurs – including teachers, youth workers, paramedics, police, and sports coaches.

The charity will also collect research information on the number, causes and types of traumatic dental injuries throughout the UK as well as provide specialist support and advice to dental professionals to disseminate best practice in this area.

<http://www.dentaltrauma.co.uk/>



COMMUNICATION TOOL IMPROVES COOPERATION IN CHILDREN WITH AUTISM

A new communication tool has been created for dental professionals who work with children and young people with autism spectrum disorders or learning difficulties.

Sheffield Salaried Primary Dental Care Service worked with children, parents and software company Wigit to develop a four-page tool which uses graphic symbols alongside text to aid communication and understanding.

An evaluation of the communication tool in association with the University of Sheffield, published in the *Journal of Disability and Oral Health*, showed that children's cooperation with treatment improved.¹ Some children coped with treatment that they had previously found impossible; others started to communicate verbally with the dental team when they had never spoken in the dental surgery before. Use of the tool also improved the clinicians' confidence and job satisfaction.

The leaflets can be used to prepare a child in advance of the dental appointment, laminated to use in the surgery or given out to encourage oral care at home. Procedures supported include fluoride varnish application, in accordance with current prevention guidance, and placement of preformed metal crowns using the Hall Technique.

To download and print the leaflets, which are free of charge, visit <http://www.wigit-health.com/downloads/dental-procedures.htm>. It is also possible to create your own customised materials.

1. Harris J C, Marshman Z, Short J A. Development and qualitative evaluation of a communication tool for children with autism spectrum disorders and other communication difficulties. *J Disabil Oral Health* 2014; **15**: 33-39.



Image used with permission: Wigit Symbols ©Wigit Software 2002-2014

COULD YOU WRITE AN ARTICLE FOR *BDJ TEAM*?

Would you like to contribute to *BDJ Team*, the online monthly magazine for all dental care professionals (DCPs)? We are keen to hear from you if:

- You are involved with research or audit and would like to submit an article for peer review and possible publication
- You would like to appear in a 'day in the life' style profile piece
- You have had an exciting career or have an unusual hobby and would like to write about it for *BDJ Team*
- You are an expert on a core CPD topic and would like to share your knowledge through an original article for *BDJ Team*
- You would like to appear in a mini 'FLASH INTERVIEW'
- Your dental practice has been involved in a special event (such as fundraising, oral health education in the community, a practice open day or practice makeover) and you think it would make a good news story.

OR perhaps you have an idea for an article that you would like to see in *BDJ Team* or a topic not yet covered - or not covered often enough.

We would love to hear from you. Please email the Editor, Kate Quinlan, on bdjteam@nature.com, call 020 7843 3680 (office hours) or write to *BDJ Team*, BDJ Editorial, 4-6 Crinan Street, London, N1 9XW. ALL IDEAS AND SUGGESTIONS WELCOME!

BRITISH DENTAL
CONFERENCE &
EXHIBITION 2015

BDA
British Dental Association

EVENT PREVIEW

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THURSDAY 7 – SATURDAY 9 MAY 2015

www.bda.org/conference

* Early bird price ends Monday 9 February 2015

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THE EXHIBITION

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Choose from 150+ of the industry's top dental suppliers. Discover the latest innovations to improve your practice in the Innovation zone.

Free learning and networking sessions.

Connect with peers and share ideas, and pick up new techniques and the latest thinking in 60+ free learning sessions.

Professional development and business advice.

Meet BDA professional advisors and other business experts in the Advice zone who will advise on how you can progress your career and grow your practice.

After a day packed full of learning, come and enjoy the programme of activities we've put on to enable you to meet others attending the event.

THURSDAY 7 MAY

Networking Drinks (FREE)

Meet other conference delegates, exhibitors and speakers as the opening day draws to a close (18:00-19:00). Share ideas and what you've learnt that day over a complimentary drink.

FRIDAY 8 MAY

Cuban Night (£25 inc vat)

Join the Friday night party at Revolucion de Cuba Manchester, a stunning 2 floor bar and cantina just off Manchester's busy Deansgate.

Spring Ball (£60 inc vat)

The event of the year for newly qualified dentists. Taking place at the Palace Hotel, the venue boasts some of the grandest facilities in the North of England, with a stunning art deco interior.

SATURDAY 9 MAY

Honours and Awards Gala Dinner (£85 inc vat)

Celebrate the achievements in dentistry of this year's recipients at Manchester's Midland Hotel.

SOCIAL AND NETWORKING PROGRAMME

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PHILIPS

Conference Pass highlights

Basil Mizrahi

Private Practitioner, London and Honorary Clinical Lecturer,
Eastman Dental Institute

The worn dentition AND
Treatment options for the more complex cases
of the broken down dentition

Daniel Wismeijer

Professor and Head of Department of Oral Implantology
and Aesthetic Dentistry, Academic Centre for Dentistry
Amsterdam (ACDA), the Netherlands

Digital dentistry – where is all of this taking us?

Francesco Mannocci

Professor of Endodontology,
King's College London Dental Institute

Endodontics: what are the limits? Indications,
contradictions and technical solutions

Tony Preston

Senior Lecturer and Honorary Consultant in Restorative
Dentistry, University of Liverpool

Managing the older dentition

Chris Tredwin

Professor of Restorative Dentistry and Head of Peninsula
Dental School, Plymouth

Restorative dentistry made simple: what is the
key to successful outcomes?

The complete Conference Programme will be
available soon at www.bda.org/conference

Joanna Millwood

Society of Gerodontology and Senior Special Care Dentist,
Dental Dept. Loughborough Hospital

Dementia: understanding how it affects us and
the impact it has on your patients

Richard Cure

Honorary Associate Clinical Professor,
Head of Dentistry Studies and Clinical Director
Orthodontics, University of Warwick

A GDP's guide to orthodontic appliance systems –
uses and limitations

Kevin Lochhead

Specialist Prosthodontist and Clinical Director,
Edinburgh Dental Specialists

Removable prosthodontics: aesthetic results
for partial dentures

Van P Thompson

Professor of Biomaterials, Biomimetics and Biophotonics,
King's College London Dental Institute

Composites: effective restorative materials
to help you achieve the best possible outcomes

Other topics to look out for include:

Aesthetic dentistry

Periodontics

BSDHT hosted content for the whole team

Mouth cancer

More restorative dentistry

More special care dentistry

All core CPD topics

Exhibition Pass highlights

With a free Exhibition Pass, although you will not have access to the Conference Pass sessions, there is still so much on offer within the Exhibition. All core subjects are covered in the Exhibition Hall and all sessions offer verifiable CPD. These activities are free to attend for Exhibition Pass and Conference Pass holders.

TRAINING ESSENTIALS THEATRE

Free 30-minute sessions for the whole team
Based on the ever popular BDA Training Essentials portfolio, you can choose from over 18 sessions taking place over 3 days. These shorter sessions cover a range of topics including core cpd subjects, regulatory updates, personal development and practice related topics.

We are delighted to host sessions by DCP associations, including BADT, ADAM and BADN.

Confirmed sessions include:

- Oral cancer: prevention and early detection
- Handling patients complaints successfully
- Disinfection and decontamination
- Radiography and radiation protection
- Legal and ethical issues.

Plus many more team friendly sessions to come!

SPEAKERS' CORNER

Peer-to-peer learning

Speakers will reach out to the audience with informal 15 minute presentations ranging from clinical hot tips right through to current issues in dentistry, new ideas and lifestyle discussions/career case studies. All mini-sessions offer FREE verifiable CPD.

These peer-to-peer sessions proved very popular in 2014 and therefore Speakers' corner will be expanded in 2015.

ADVICE ZONE

Careers advice | Legal advice | Tax advice
Business planning advice | Education advice
Marketing advice | plus much more...

Whether your CV needs an overhaul, your practice needs a new website or you want to learn about post-graduate courses to further your career, the Advice zone is the place to visit. Come along and register on the day for your FREE 15 minute one-to-one meeting.

INNOVATION ZONE

Discover the latest innovations that will improve work within your practice. The zone showcases the key innovative developments in dentistry and allows you to see demonstrations of new products that are contributing to the future of dentistry. Gain 45 minutes of FREE verifiable CPD by visiting the Innovation zone.

DEMONSTRATION THEATRE

In association with:



This theatre in the Exhibition will host practical and exciting watch-and-learn sessions on a range of subjects, all offering verifiable CPD.

The Demonstration theatre will feature sessions on:

- Managing medical emergencies in the dental practice
- Using conscious sedation to help phobic patients
- Clinical photography in the dental practice.

Book your place today

Register for your Conference Pass or free Exhibition Pass online www.bda.org/conference or call 0870 166 6625

Reception and telephone skills for the whole dental team

British Dental Association, 64 Wimpole Street, London W1G 8YS

Friday 28 November 2014

High standards of customer care, good communication and organisational skills are fundamental in securing and retaining patients.

This course will equip you with the necessary skills to project the right impression, listen effectively and attentively and cope with situation under pressure. The course is for all members of the dental team who are in a first contact position at the practice and involved in both face to face and the receiving/making of telephone calls.

This course offers 4.5 hours verifiable CPD.

10.00 - 16.00 (registration from 09.30)

By the end of the course you will:

Speaker



Heather Dallas
Managing Director,
Dallas Development

- recognise the vital importance of generating a professional and approachable first impression
- understand how to put anxious patients at ease
- answer calls warmly, promptly and professionally
- learn how to juggle dealing with face to face patients and telephone calls at the same time
- know how to deal with difficult situations with the use of assertiveness techniques
- be able to build and maintain rapport with new and regular patients.

Course fees:	BDA members	£215	Non members	£315	DCPs	£135
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4.5 hours
verifiable
CPD



Radiation protection in dental X-ray surgeries

G. Hart¹ and M. Dugdale² say that there is still room for improvement in dental X-ray practices.

Compliance concerns

The Health and Safety Executive's (HSE) *Radiation Protection News* of June 2010¹ stated that their radiation team were 'concerned about the poor standards of compliance with the IRR99 they have found during inspections at dental practices and chiropractors. Many fail to properly comply with the IRR99' (Ionising Radiations Regulations 1999)² 'and some have not even paid scant attention to its most basic requirements. As a result they have put themselves, their staff and members of the public to unnecessary risk.'¹ The newsletter specifically mentioned a number of issues, including the production of a 'suitable and sufficient' radiation risk assessment, training, appointment of a radiation protection adviser (RPA), production of local rules and the maintenance of X-ray equipment.

Given that practices that have not appointed an RPA have shown a low level of compliance with IRR99, there is reason to believe that if they have not appointed a medical physics

expert (MPE) they would also be likely to show a low level of compliance with the Ionising Radiation (medical exposure) Regulations 2000 (as amended 2006 and 2011) (IRMER)³ despite the publication of detailed guidance notes on compliance with both IRR99 and IRMER back in 2001.⁴

Latest data from the Health Protection Agency (HPA)⁵ show that dental X-ray examinations remain the most common radiological investigation, with almost 12 million investigations taking place in 2008, representing a dental X-ray in almost one in five of the population. Although dental X-ray examinations are the most frequent, the same report demonstrates that they do not appear in the 20 types of examination that contribute most to the total collective dose. This is because the effective dose from most dental X-ray examinations is low, as demonstrated by the last HPA report on dental radiation doses to patients published in 2007.⁶

However, the introduction of more complex dental radiographic techniques, such as cone beam computed tomography (CBCT), does have the potential to radically increase patient exposure, as outlined by the report from the HPA Working Party on

dental cone beam CT⁷ and their subsequent guidance document.⁸

The aim of this paper is to illustrate the authors' experience in the provision of RPA/MPE services and critical examination/radiation quality assurance (QA) testing, to demonstrate any continuing variability of the compliance of X-ray sets with existing guidance and of compliance of dental practices with existing legislation.

The study

Data have been collected from a series of critical examination and routine three-yearly radiation QA tests on 915 intra-oral X-ray sets and 124 panoramic sets. Unlike the HPA 'postal pack' system, these data are the result of direct measurements on the sets, made using a traceably calibrated Unfors Xi meter. The testing covered the measurement of peak kilovoltage (kVp); filtration; timer accuracy and consistency; X-ray beam size; and radiation output, measured as the entrance surface dose in milliGray (mGy) for intra-oral sets and dose-area product (DAP), measured in mGy.cm² for panoramic sets. Physical checks, including mechanical stability, were also included as part of the testing process.

¹ *YourRPA, Independent Radiation and Laser Protection Adviser, Morecambe*; ² *Radiation QA Services Limited, Thorniehurst*

Maximum radiation output was assessed against the UK's National Reference Dose (NRD), a form of Diagnostic Reference Level, defined in IRMER as dose levels in radiodiagnostic practices for typical examinations for groups of standard-sized patients or standard phantoms for broadly defined types of equipment. Recommendations for dental NRDs are provided by the HPA.⁶ The *Dental Guidance Notes* suggest that 'they would not normally be expected to be exceeded without good reason.'

Data have also been collected from the provision of RPA/MPE services to 136 general dental practices, having a total of 317 intra-oral X-ray sets and 41 panoramic sets. Information was obtained by questionnaire regarding:

- X-ray equipment, to capture the data required by IRMER
- Room layout and wall construction, to assess what level of shielding was in place
- Position of the X-ray control box and isolator switch, to assess whether any radiation hazard might be created in the event of the set failing to terminate its exposure
- Operator's position when effecting X-ray exposures, to ensure they remain outside the radiation controlled area and ideally at least two metres from the patient during exposures, as well as away from the line of the main X-ray beam
- Whether digital or film-based imaging was used
- Whether staff were monitored for radiation dose, and if so, to provide recent dose data
- The frequency of X-ray use in terms of average number of exposures per week, to assess staff radiation exposure.

This was supplemented by visits to approximately 10% of clients, either at their request or where CBCT equipment was either planned or installed.

All critical examination/QA measurements and RPA/MPE documentation and visits occurred during the period 2008-2012. Approximately 90% of the critical examination/QA data originate from dental practices in northern England, covering an area from Derbyshire to the Scottish border, with the remainder coming from London and south-east England. The RPA/MPE data is from dental practices over the whole of England (with two practices in Scotland), although again with a prominence from the north.

While there is significant overlap between the datasets for the dental practices covered by the critical examination/QA checks and the RPA/MPE service, some practices are unique to each dataset.

RESULTS

Radiation critical examination and QA tests

Only two of the 915 intra-oral X-ray sets tested still operated at 50 kVp. All others operated at a minimum of 60 kVp.

All sets tested (both intra-oral and panoramic) met the minimum requirement for filtration of 1.5 mm aluminium for sets operating at up to and including 70 kVp, or 2.0 mm aluminium for sets operating at tube voltages above 70 kVp.

All intra-oral sets met the recommendation for maximum beam size of 60 mm diameter for those with circular collimators. The range of circular collimator diameters within the survey was 54-60 mm, with a mean of 59 mm. Twenty-five percent of the intra-oral sets tested were equipped with rectangular collimators, all of which were within (but generally at) the maximum recommended size of 35 mm x 45 mm. Only three panoramic sets exceeded the recommended maximum beam size of 5 mm x 150 mm.

For panoramic sets, 296 DAP measurements were made at different kV/mA settings on a total of 124 panoramic sets. DAP values ranged from 7-179 mGy.cm², with a mean DAP value of 58.8 mGy.cm² and a median of 54.5 mGy.cm². Eighteen percent of the panoramic sets had at least one measurement above the current UK NRD of 82 mGy.cm².

Measured maximum entrance doses for intra-oral sets ranged from 0.13 mGy - 6.53 mGy, with a mean dose of 1.96 mGy and a median dose of 1.93 mGy. Thirty-five percent of

sets exceeded the adult NRD of 2.3 mGy given in HPA Report 0296 on at least one setting. Forty percent of those sets with a child dose setting exceeded the NRD of 1.5 mGy on at least one setting.

Maximum intra-oral radiation doses varied widely from manufacturer to manufacturer, and for different models of any given manufacturer, as demonstrated in Figure 1.

When the same data are plotted in terms of the collimator shape (Fig. 2), it reveals a generally lower radiation dose for sets with rectangular collimators. Measured maximum doses for sets with circular collimators ranged from 0.15-6.54 mGy (mean \pm SD = 2.05 \pm 0.93 mGy, where SD is the standard deviation), whereas for sets with rectangular collimators it ranged from 0.28-3.34 mGy (mean \pm SD = 1.55 \pm 0.69 mGy). The mean dose for sets with rectangular collimators was thus 76% that of sets with circular collimators, the difference being statistically significant ($p < 0.001$).

When comparing the maximum dose from digital and film-based X-ray sets, this ranged from 0.28-4.79 mGy (mean \pm SD = 1.31 \pm 0.73 mGy) for digital sets and from 0.7-6.54 mGy (mean \pm SD = 2.22 \pm 0.82 mGy) for film-based sets. The mean digital dose was therefore 59% of that from film-based sets. These data are shown graphically in Figure 3, the difference again being statistically significant ($p < 0.001$). The data also reveal that only 10.7% of digital sets exceed the adult NRD on at least one setting, compared to 85.7% of film-based ones. For sets with child dose settings, 24.2% of digital sets exceed the NRD on at least one

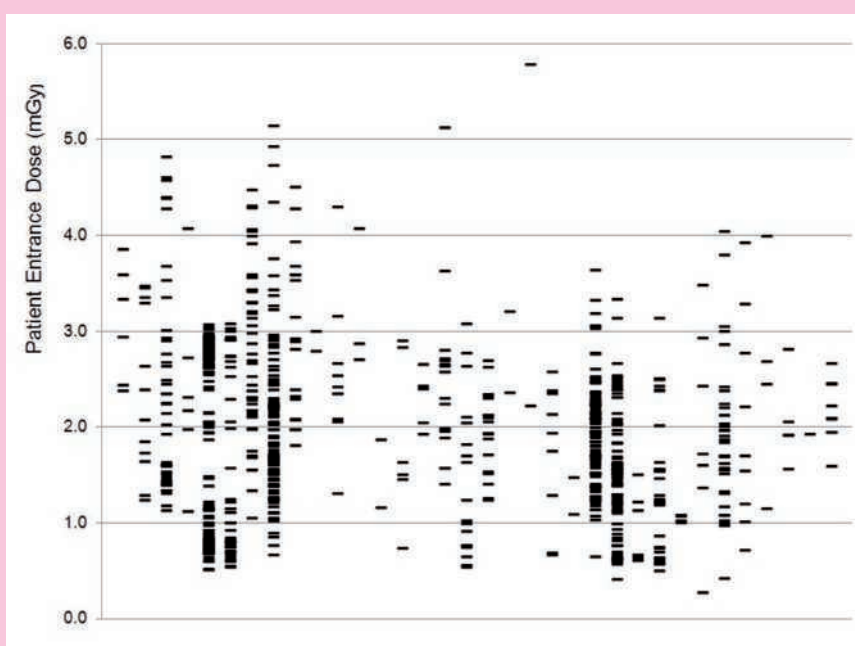


Fig. 1 Maximum patient entrance surface doses for different manufacturers and models of intra-oral sets. Each column indicates a particular model of X-ray set and each short horizontal bar a single measurement

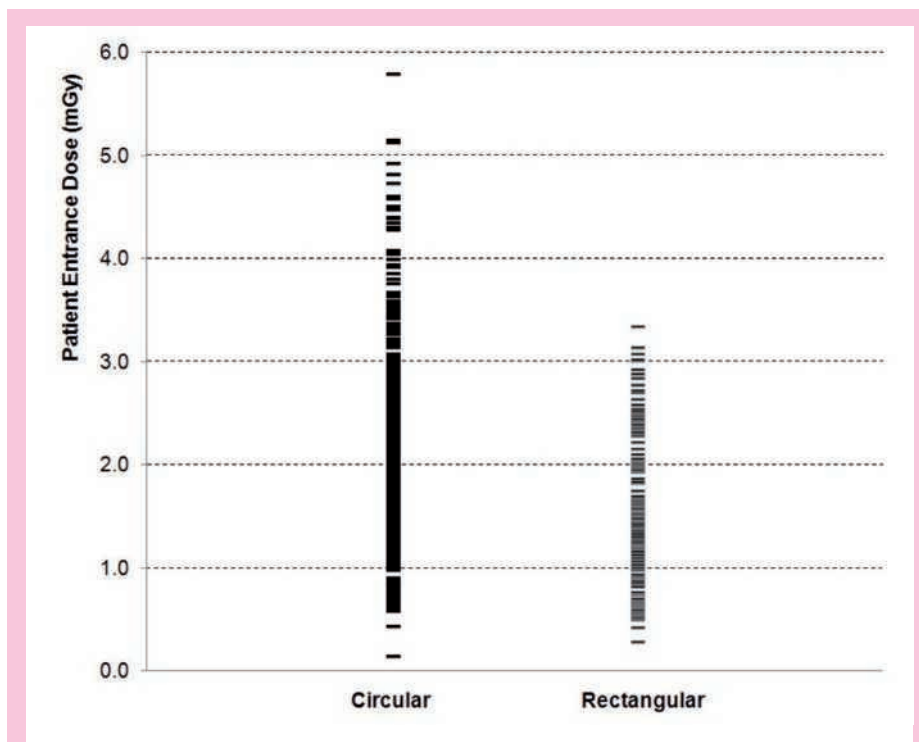


Fig. 2 Maximum patient entrance surface doses for intra-oral sets with circular and rectangular collimators

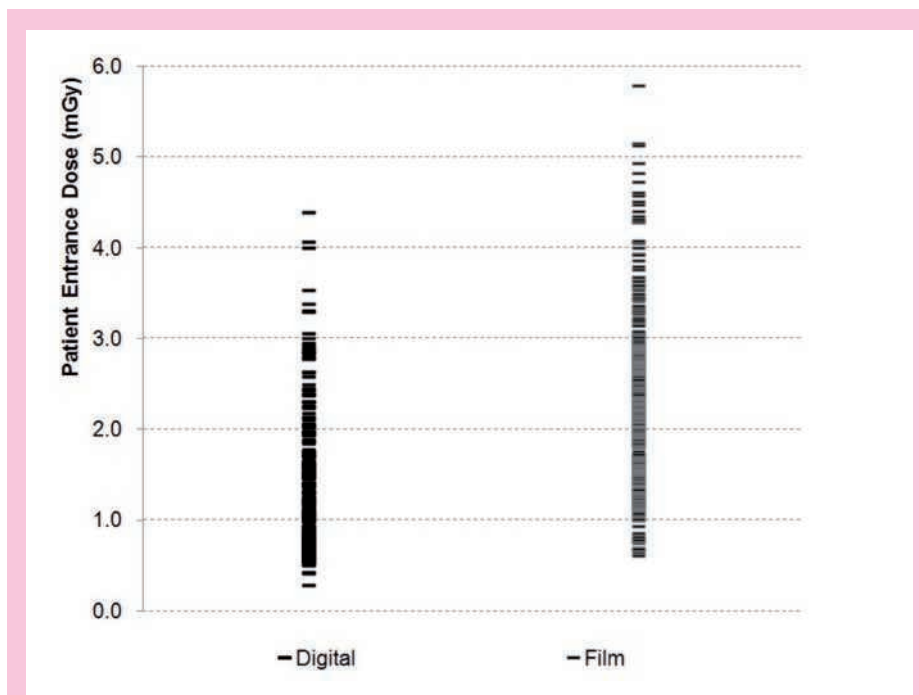


Fig. 3 Maximum patient entrance surface doses for digital and film-based intra-oral sets

setting, compared to 50.8% of film-based ones.

Timers on intra-oral sets were consistent but frequently inaccurate. Timer errors ranged from 0500%, with 37% of sets with marked set times having errors greater than 10%.

RPA/MPE issues

Of the 317 intra-oral X-ray sets in the 136 dental practices, 135 sets used film-based

imaging systems and 182 used digital imaging. One hundred and ninety-four sets used circular collimators and 123 used rectangular collimators. All collimators were within the maximum dimensions recommended in the *Dental Guidance Notes*.³

One hundred and seven of the 317 intra-oral X-ray sets (34%) were advised that the radiation doses their patients received had at

least one setting that exceeded the NRD. Of these 107 sets, 40 (37%) were advised that dose reductions of at least a factor of two should be possible without reducing image quality to non-diagnostic levels. Four of the panoramic sets had at least one setting above the NRD.

The frequency of X-ray exposures ranged from 2-150 per week per set, with a mean value of 33 exposures per week per set. Both the median and modal values were 30 exposures per week per set. Ten X-ray sets had a usage of ≥ 100 exposures per week per set.

Only two dental practices monitored their staff for radiation exposure, with both obtaining results below the UK's national mean value of 0.08 mSv.y⁻¹ for dental staff.

Twelve dental practices had installed 'lead lining' to one or more walls within the practice, with two of those dental practices also having installed lead lined doors before the appointment of the author as RPA.

Twenty-one of the 317 intra-oral X-ray sets required advice to amend the operator position during radiographic exposures, as they were either potentially standing in the line of the main X-ray beam for certain exposures or were in positions where the scattered radiation dose meant that they might not be receiving radiation doses that were as low as reasonably practicable. In nine cases the position of the isolator switch was sub-optimal, in that in the event of a set failing to terminate an exposure, the operator might have to enter the radiation field in order to isolate the set from the mains.

DISCUSSION

Radiation critical examination and QA tests

Both film-based and digital X-ray sets show a wide variation in maximum radiation doses. Four models of X-ray set in this survey always had some doses above the DRL. However, most of the variation cannot be attributed to the type or model of X-ray set used, since Figure 1 demonstrates that the variation exists for almost any given manufacturer or model of X-ray set within the survey. The wide range of maximum doses for both film-based and digital sets demonstrates that there remains scope for significant dose reduction in many dental practices.

The data for digital sets in Figure 3, with a mean maximum radiation dose 60% that of film-based sets, clearly demonstrates the dose saving that can easily be achieved by using digital sets. However, it also illustrates the often unrealised potential for dose saving using these technologies. In some cases, dental practices have changed from film-based to digital receptors but have simply continued to use their existing film settings and where those were

already sub-optimal a significant opportunity for dose reduction has been missed.

Some of the variation in recorded doses for digital sets may be due to the difference in exposure latitude of either direct digital plates (also known as direct digital radiography or DR) or phosphor plates (also known as computed radiography or CR). Similarly some of the variation of film-based sets may well have been due to differences in film speed used. This level of information was not recorded in the survey and thus cannot be analysed here.

Apart from this, two key issues have dominated: critical examination/routine QA testing for X-rays sets and design/shielding issues for dental surgeries containing X-ray equipment.

IRR99 makes it clear that all X-ray equipment that is being installed, moved or subject to a major maintenance procedure must be subject to a critical examination to show that it is electrically, mechanically and

dose optimisation cannot be achieved.

The layout of dental surgeries with X-ray equipment and the need (or lack of need) to provide additional shielding to the walls

'A NUMBER OF DENTAL PRACTICES HAD NOT ARRANGED FOR THE THREE-YEARLY SET OF ROUTINE CHECKS ON DENTAL X-RAY EQUIPMENT.'

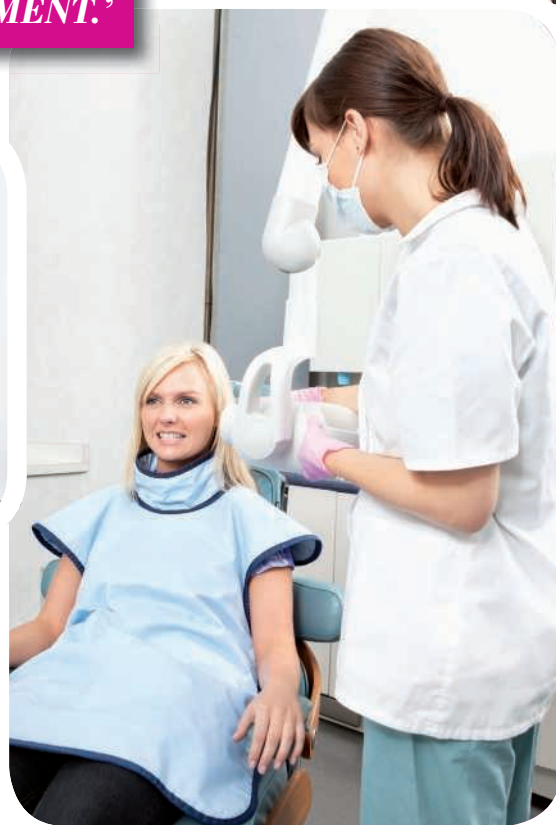
The data regarding choice of collimation show that the mean maximum radiation doses from sets with rectangular collimation was 76% that of those with circular collimation, a mean dose saving of 24%. Although this is smaller than might be expected from a pure ratio of beam areas (59 mm diameter = 2734 mm², 35 mm x 45 mm = 1575 mm², ratio = 0.58), it nevertheless demonstrates the value of using rectangular collimation, as recommended in the *Dental Guidance Notes*.⁴ Given that 75% of the sets within the critical examination/QA survey and 60% of sets within the RPA/MPE survey were still using circular collimation, the data again suggest a significant potential for further dose reduction. It is understood that there are some technical and practical difficulties with the introduction and use of rectangular collimators on some models of dental X-ray set. Nevertheless, given the potential dose saving, dental practices should continue to be encouraged to change to rectangular collimation whenever practicable.

RPA/MPE issues

Practices that had not previously employed an RPA or MPE demonstrated a low level of compliance with both IRR99 and IRMER. This occurred because basic regulatory compliance issues such as the production of radiation risk assessments, local rules, quality assurance procedures, and the raft of policies and procedures required by the IRMER and detailed in the *Dental Guidance Notes* had not been addressed.

radiologically safe to use from a patient and staff perspective. Many practices are unaware that this is not only a legislative requirement for the installer, but also crucial for the practice in determining whether the set is functioning correctly before using it on patients. Previously published work has demonstrated that such faults can give rise to catastrophic failure and significant dose consequences.⁹

A number of dental practices had not arranged for the three-yearly set of routine checks on dental X-ray equipment to be carried out as specified in IRR99 and outlined in the *Dental Guidance Notes* to the Regulations. In other cases, previous records of such tests had been lost, typically when dental practices changed ownership. Without these routine checks being made, records being kept and subject to audit, either by the dental practice or the RPA/MPE, effective quality assurance and



Experience has shown that many installers of dental X-ray equipment automatically assume the need for 'lead lining', often at considerable expense.

The report of the joint committee of the British Institute of Radiology (BIR) and the Institute of Physics and Engineering in Medicine (IPEM) entitled *Radiation shielding for diagnostic X-rays*¹⁰ makes it clear that unless the workload is very high or the dental surgery very small, additional shielding is unlikely to be needed. The report states that in most cases two sheets of standard plasterboard are likely to provide more than adequate protection to keep radiation doses in adjoining spaces well below the usual design dose constraint of 0.3 mSv per year. These recommendations were made based on a dental set with a circular collimator of 60 mm diameter giving an entrance dose of 2 mGy. Given that recently-installed digital sets with rectangular collimators should produce exposures two to three times less than this, it

usage. The mean frequency of 33 exposures per week per set is somewhat higher than the figure of 20 exposures per week per set quoted in the BIR/IPEM report on shielding.^{10,11} However, the fact that approximately 4% of the sets within the survey are being used for 100 or more exposures per week per set may well indicate that recommended criteria for patient selection such as that produced by the Faculty of General Dental Practice UK¹² are not being followed and this needs further investigation.

One ionising radiation issue that has frequently been ignored is the topic of radon in the workplace. Although this is a naturally occurring source of ionising radiation exposure, it still needs to be addressed by the employer as part of their radiation risk assessment process. It is particularly an issue for dental practices in 'radon affected areas' and/or those with below-ground or poorly ventilated ground-floor work areas.

Further information on this topic should be

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The full version of this article was originally published in the BDJ as Radiation protection in dental X-ray surgeries - still rooms for improvement (BDJ 2013; 214: E16).

For CPD questions on this article, visit www.nature.com/bdjteamcpd.

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'THESE ISSUES ARE EVEN MORE IMPORTANT

FOR DENTAL PRACTICES CONSIDERING

THE INSTALLATION OF CBCT EQUIPMENT...'

is difficult to understand why some agencies are still recommending that: 'the X-ray beam should not be directed towards a light partition wall unless it can always be ensured that the adjacent area is not occupied' and 'should this not be practicable additional radiation shielding should be incorporated'. The BIR/IPEM report has recently been revised¹¹ and shows that scattered radiation dose levels are in fact lower than had been previously considered.

The key recommendation that plasterboard walls should provide sufficient protection for most intra-oral and panoramic workloads remains. This is an issue where direct assessment from an RPA for each individual dental practice would be able to clarify their shielding requirements.

These issues are even more important for dental practices that are considering the installation of CBCT equipment, where the significantly higher levels of radiation dose require improved room design and increased level of shielding during the planning and installation stage, followed up with increased training in equipment use and image interpretation. The frequency and complexity of QA checks are also significantly greater with CBCT equipment and demand increased involvement of the MPE to ensure patient radiation doses are optimised.

The data showed a wide range of equipment

available from the practice's RPA or from the HSE on its website (<http://www.hse.gov.uk/radiation/ionising/radon.htm>).

It should be noted that attendance at courses or online training in radiography and radiation protection is a requirement of the General Dental Council (GDC) for continuing professional development (CPD) and that at least five hours is done in this subject every CPD cycle. Although such courses have been running for some time, it is clear that some dental practices remain largely unaware of staff and patient radiation protection issues and legislative compliance. It is to be hoped that as dental practitioners go through CPD cycles, their awareness improves.

CONCLUSIONS

Many dental practices still do not have either an RPA or an MPE to advise on patient protection issues. This goes against direct HSE policy that 'practices must consult and appoint a suitable radiation protection adviser about compliance with the IRR99'.

Where no RPA/MPE appointment had been made, there was often a very low level of compliance with legislative requirements.

The active involvement of an MPE has the potential to reduce patient (and hence staff) radiation doses still further in many practices.



MANAGING DENTAL EROSION

By **Carolyn Renton**,
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dental student

Dental erosion is on the increase

There is common awareness within the dental profession that dental erosion is on the increase. What is causing this increase and what can be done to prevent this irreversible destruction? This article will explore the aetiology, risk factors, diagnosis and clinical features of dental erosion. It will also suggest practical tools for passive and active roles in the prevention and management of dental erosion.

Introduction

In the last decade tooth erosion has drawn increasing attention as a risk factor for enamel wear. There is evidence that its prevalence is growing steadily and there has been a gradual realisation that the younger population are being increasingly affected.¹

Dental erosion is the irreversible loss of hard dental tissue due to a chemical process of acid dissolution but not involving bacterial plaque acid, and not directly associated with mechanical or traumatic factors, or with dental caries.² Although similar, the caries process begins as a sub-surface enamel lesion that is

conductive to remineralisation, whereas erosion is a surface-softening lesion that is susceptible to wear and resistant to remineralisation by conventional therapies.

Aetiology

Erosion is usually multifactorial and often co-exists with other non-carious tooth surface loss such as abrasion, attrition and abfraction. Over time the interaction of all these factors may lead to the progressive loss of tooth tissue and there are often overlapping factors that may play a role.

The chemical process of dental erosion is the

same as dental caries where there is dissolution of hydroxyapatite crystals; however, the clinical manifestation is fundamentally different because the erosive process does not contain bacteria. Instead erosion results from exposure to non-bacterial acids of either an extrinsic or intrinsic origin.³ It is caused by sustained direct contact between tooth surfaces and acid substances, essentially, whatever causes the oral pH to drop below the critical point of 5.5. Clearance of the acids is often down to the salivary flow rate and the buffering capacity.

Risk factors

There are three different risk factors: intrinsic sources, extrinsic sources and predisposing factors.

1. Intrinsic acid sources are of gastric origin and enter the mouth from the stomach. Examples of sources are listed in Table 1. Intrinsic acid is heavily associated with

significant palatal wear of the maxillary teeth. A thorough medical/dental history can establish any underlying issues the patient may have.

2. Extrinsic acid sources are substances taken into the oral cavity. There has been much scientific research into the habits of dietary practices especially with the emphasis on healthy food and drink. A trend towards an increased number of eating occasions has been observed, **and** if the increased number of occasions are accompanied by the inclusion of acidic foods or drinks at each occasion, then this could heighten the risk for erosive damage.^{4,5} With a healthy lifestyle comes frequent exercise which can also potentially lead to frequent intake of acidic sports beverages. Certain occupations and lifestyle choices can also make patients more vulnerable.^{6,7}
3. Salivary flow and buffering capacity can have a big impact on clearance of acidic substances. Saliva contains bicarbonate and urea and rapidly neutralises the acid remnants and returns the pH to normal.⁸ If a person has low saliva rates and poor buffering capacity they are much more likely to suffer with erosion.

Benefits of chewing

Whether the acid attack is caused by extrinsic, intrinsic or predisposing factors, the pH of saliva can be modified by chewing sugar free gum for 20 minutes after acid exposure. The increased levels of bicarbonate and calcium ions assist in a more rapid remineralisation of the tooth surface.⁹ Many studies show that if saliva is stimulated through chewing gum plaque acid is neutralised more quickly than if gum is not used. Also, chewing sugar-free gum is shown to help remove up to 95% of residual food debris within just a few minutes.^{10,11}

Diagnosis

Accurate diagnosis of erosion begins with assessment of risk factors and relevant medical/dental histories and visual examination. If it is detected in the early stages appropriate steps can be taken to halt its progression. Erosion often presents on the palatal surface of the maxillary teeth, and the occlusal surface of the mandibular first molars. It can also be seen on the buccal surfaces of maxillary and mandibular canines and premolars, and occlusally on the maxillary and mandibular canines and molars.¹² Early signs include smooth flat facets on buccal or palatal surfaces, and shallow, localised dimpling on the occlusal surfaces.¹³ Since hard tissue loss is irreversible, worn dentition is a great challenge for clinicians and their patients, making it

Table 1 Examples of extrinsic and intrinsic acid sources

Acid Type	Risk factor	Example
Extrinsic	Dietary	Fruit
		Fruit juice
		Sports/energy drinks
		Fruit smoothies
		Carbonated beverages (diet)
	Wine	
Occupational	Wine taster	
	Metal sheet worker	
Environmental	Swimmer	
	Athlete	
Medication	Vitamin C	
	Aspirin	
Lifestyle	Ecstasy	
	Frothing/swishing drinks	
Intrinsic	Medication	Antihistamines
		Antidepressants
		Antipsychotics
	Illness	GORD (reflux)
Bulimia		
Lifestyle	Frequent vomiting (pregnancy)	
	Rumination	

imperative to recognise the signs of erosion to facilitate early intervention before significant hard tissue is lost. Once suspicion is raised, it is essential to record accurately the severity and extent in order to establish a baseline for future observations.

Passive management

The main thrust of prevention is to change lifestyle and to record and monitor the progression. If the patients have no complaints regarding pain and sensitivity a ‘watch and wait’ principle should be employed.¹⁴ There are several steps to follow before active management approaches should be undertaken:

1. Inform the patient of the problem and its causes, and provide appropriate literature

2. Ascertain underlying diseases or medications associated with the presence of intrinsic acids. It may be necessary to consult with the patient’s doctor
3. Monitor progression with tooth wear indices, photos, study models, silicone impressions and splints¹⁵
4. Provide personalised dietary counselling, or refer patient to a dietitian where applicable. After completing a diet diary and personalised consultation, you may recommend:
 - a. Reducing the frequency and consumption of acidic foods and drinks where appropriate
 - b. Sugar-free alternatives where applicable
 - c. Avoid frothing and swishing especially with carbonated beverages

- d. Chew sugar-free gum for 20 minutes after the consumption of acidic foods, explaining the benefits outlined above
 - e. Do not brush for at least an hour after the consumption of acidic foods
 - f. Avoid occupational exposure with mouth guards, splints or neutralising agents
 - g. Use a high fluoride, low abrasive toothpaste, and a soft-medium bristled brush
5. Apply fluoride varnish to susceptible surfaces to provide a protective film and reduce direct contact between tooth surfaces and acid.¹

Active management

Invasive procedures should not commence until a period of monitoring has taken place and the erosive progression has halted. Assessment of space in the inter-cuspal

position is essential prior to treatment to assess the working space; possible procedures could be:

1. A Dahl appliance may be required if there is palatal erosion of the upper anterior teeth with no inter-occlusal space, as it will create an open bite and allow relative extrusion of the posterior teeth to later provide composite resin restorations¹⁷
2. In generalised erosion evaluation of the freeway space may lead to restoration by way of conventional crown work.¹⁸

Conclusion

Prolonged exposure from acids either intrinsic or extrinsic on the tooth surface will result in softening and dissolution of surface minerals. If it is not diagnosed and treated early it may cause irreversible loss of hard dental tissue. Early intervention is key to effective prevention by reducing direct contact with acids through

diet advice, increasing salivary flow to neutralise the acids by chewing sugar-free gum, and minimising toothbrush abrasion with personalised oral health education.

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CPD QUESTIONS

Test yourself on this article by answering the questions below, and include reading this article in your record as one hour of non-verifiable (general) CPD.

The answers will be published in the November issue of *BDJ Team*.

1. Dental erosion is:
 - A. due to eating a diet consisting of course food
 - B. the irreversible loss of hard tissue due to alkaline foods and drinks
 - C. the irreversible loss of hard tissue due to a chemical process of acid dissolution
 - D. caused by bacterial plaque
2. Which of the following describes the process of erosion?
 - A. it begins with bacteria which are sub-surface in dental hard tissues
 - B. it is a surface-softening lesion
 - C. it can be remineralised by conventional therapies
 - D. it is not susceptible to wear
3. The aetiology of erosion is:
 - A. caused by exposure to non-bacterial acids
 - B. mediated by the oral pH being above the critical point of 6.5
 - C. unaffected by the salivary flow rate
 - D. solely caused by extrinsic acids from foods taken into the oral cavity
4. Chewing sugar-free gum for 20 minutes after acid exposure:
 - A. removes only 45% of residual food debris
 - B. decreases levels of bicarbonate and calcium thereby lowering the pH of saliva
 - C. neutralises plaque acid more slowly
 - D. assists in a more rapid remineralisation of the tooth surface
5. Signs of erosion:
 - A. are usually in the form of jagged deep cavities
 - B. most frequently occur on the labial surfaces of upper incisors
 - C. include smooth, flat facets on the buccal or palatal tooth surfaces
 - D. may be detected early on the mesial and distal surfaces of first molars
6. In preventing erosion the main activity involves:
 - A. early extraction of all teeth involved
 - B. changing the patient's lifestyle, recording and monitoring progression
 - C. recommending twice-daily salt water mouthwashes
 - D. eating as many healthy acidic fruits as possible
7. Which of the following is **not** a recommended aspect of dietary counselling?
 - A. avoiding frothing and swishing of carbonated beverages
 - B. brushing immediately after acid exposure
 - C. using high fluoride toothpaste
 - D. chewing sugar-free gum
8. Active treatment:
 - A. should only commence after a period of monitoring and the erosive progression had halted
 - B. is unlikely to include crown work as there is insufficient tooth tissue remaining
 - C. can start without regard to the working space
 - D. may require composite resin build-up of the anterior teeth to create further space in the posterior quadrants

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When can I disclose patient information?

By **Shabana Ishaq**¹

Patient information should only be disclosed to other people with the patient's consent or if there are legally permitted circumstances, and there can be quite a few circumstances that justify the disclosure of information. You need to be aware of when these could apply in your dental practice.

The Data Protection Act protects the confidentiality of sensitive personal data. For patients, this includes information on their physical or mental health. Dentists must not disclose information to a third party, apart from in the specific circumstances outlined in the Act. Generally, patients should understand that their data will be discussed with other dental professionals and administrative staff within the practice but this should only be as far as is necessary and only in accordance with the provision of care to that patient. Similarly, NHS officials or NHS administrative staff will need some data so they can process payments. By seeking treatment, patients are in effect agreeing to these necessary disclosures, but make this clear to them when you collect their details and in your practice's data protection policy.

In a limited number of clinical circumstances, disclosure of information may be made to the appropriate authorities without the need for a patient's consent. Key circumstances include: if you suspect abuse of a child or vulnerable adult; if there are risks to the health and safety of others; where a patient's health and safety are at risk; or for certain infectious diseases. A number of other more routine circumstances can also arise: research, legal proceedings, police enquiries, statutory obligations, missing or deceased persons, and tax enquiries.

Health research

Dentists should consider carefully any request to disclose personal data about patients for the purpose of health research. Where information is unmistakably anonymised by the dentist or, more likely, collected by an accredited research organisation in a way to ensure individual patients cannot be identified, then there is no requirement to obtain additional patient consent. But when patient data is provided to researchers in a form where personal information is included then specific patient consent must always be obtained.

The distinction between identifiable and non-identifiable data type is critical and there is now a presumption that information will generally be provided to reputable research organisations

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where individual patients cannot be identified. The data should not be traceable to an individual. Personal details should obviously be removed but data should be released only in groups large enough so patients cannot be identified on the basis of factors such as, for example, locality, age range and rare condition.

In all cases, the researchers involved will still need to obtain specific ethical approval to examine the data and this consent will only cover a specific research project. There may be some instances where data that contain identifiable information to allow linkage to other healthcare records is collected. Only specific recognised organisations, like the Health and Social Care Information Centre (HSCIC) and Clinical Research Practice Datalink (CPRD), would be able to collect this type of data.

Access to linked patient records would only ever be provided by them to researchers in a completely anonymised form.

Legal proceedings

Personal information may have to be disclosed during legal proceedings. The overriding interests of justice generally require that all relevant information is made available to all parties (and potentially the court) so that a fair and transparent outcome can be reached.

Dentists may be on the receiving end of claims (from patients, suppliers or employment tribunal proceedings by staff) and some of your records could be important to the case. If a patient has been unhappy with the treatment provided and is seeking to bring a claim against a dentist then the patient's solicitor may ask for copies of records and treatment plans. You should ask for a signed consent form by the patient to say such information can be released to the patient's representative, although their solicitor would normally provide their client's written consent.

On the other hand, you may need to rely on patient records to prove your defence to their claim. They may say that the records are inadmissible and here the judge would have to balance their rights to confidentiality against the interests of justice in having all information available for assessing the case. Similarly, staff records could be used in employment tribunal claims. Where a dentist pursues a patient for non-payment of an account through the courts the records of the treatment done would be relevant.

Police enquiries

The police can be insistent when asking for information. They will understandably be concerned to progress an investigation. You must, however, maintain a degree of perspective

and weigh up your obligations to your patients. You must consider the seriousness of the crime and potential danger to the public if the information is not disclosed. Is it likely that the suspect will cause serious injury to another person? While having a duty of confidentiality to the patient, dental professionals also have a duty to society and this may, in certain circumstances, outweigh the duty to the patient.

Generally, if the crime is less serious or the matter is non-urgent, dental professionals should ask the police to produce a court order. This is not being obstructive. Explain the obligations you are under. The police officer should know the procedure for getting one. It could be in the interests of the police enquiry to obtain information in the proper way because a future defendant could ask the court to rule evidence obtained incorrectly as inadmissible.

Statutory obligations

A couple of laws make it compulsory to disclose information to the police. You have to provide the name and address of the driver involved in a road traffic collision and incidents have arisen where patients have been involved in crashes driving to or from the practice, although there will obviously be no need to disclose any clinical information in these situations. You may think further information about the patient, say from their medical history form, is relevant but you should not disclose this information unless formally requested as part of the police investigation, as discussed above.

Potentially the most serious situation concerns acts of terrorism: sometimes the public interest outweighs the breach of confidentiality. The Terrorism Act 2005 imposes the duty that anyone who has information about a planned or actual terrorist act must inform the police.

Missing or deceased persons

Be cautious where a case involves a missing person. Here, it is likely the police will be seeking information about a person's movements. If the individual is still alive, it is not an offence to go missing so you do not need to provide such information. But where foul play is suspected or the individual may be at imminent risk, you should disclose information to the police.

If there is the discovery of a body, dentists may be asked for patient records, including relevant charts, models or other information to help with identifying the body. The police or the coroner should make a formal request for details to be handed over for identification purposes. You should comply with these requests promptly, although you should reassure yourself that there are reasonable

grounds to believe that the body is the patient in question.

Tax enquiries

Her Majesty's Revenue and Customs (HMRC) tax inspectors may, at some point in your career, investigate your tax returns in detail. It is routine but as part of their inspection HMRC may ask for copies of appointment books, patient records and supporting documents. Patients' names should be blanked out or consent should be obtained from the patients where possible. If a tax inspector has reasonable grounds to suspect serious fraud they can require the dentist to produce the information if they have a statutory *notice of inspection*, in which case you must seek independent financial advice.

'RELEASING CONFIDENTIAL INFORMATION IS ALWAYS A HEAVY DECISION. SO, AS FAR AS POSSIBLE, ONLY THE INFORMATION THAT IS NEEDED SHOULD BE RELEASED.'

Employers and schools

Sometimes a fed-up employer may contact you because one of their employees has been taking time off for dental appointments and they want to check this is true. It is important for dentists not to get involved in a patient's workplace issues. Before disclosing any information the patient's consent should be obtained. If they were seeing you they will probably be happy for you to confirm this with their boss. The same principle applies if you are contacted by a school about a pupil's attendance.

Be sure

Releasing confidential information is always a heavy decision. So, as far as possible, only the information that is needed should be released. Remember that you may be required to defend any disclosure you make. Think it through carefully and where you have doubts make sure that you get advice from your protection society, a lawyer or (if your principal is an Extra or Expert member) BDA Practice Support.

FLASH INTERVIEWS

with a DCP near you

Debbie Chandler

Debbie is a 50-year-old lead dental nurse in special care dentistry in Dorchester. Debbie is married to Damian, an NHS administrator, and has three step-daughters: Hayley, Vicky and Zoe; and four grandchildren: Bethany, Noah, Jack and Layla.

How long have you worked in dentistry?
Thirty-four years

Why did you choose dentistry for your career? From a careers talk on dental nursing at school.

Do you have any special responsibilities within your workplace? I split my time working in the clinical setting for routine clinics, sedation clinics and GA lists. I manage the nurses in the department and work alongside the department co-ordinator to ensure staffing levels are met and clinics, GA/sedation lists are put together and the domiciliary service is running correctly.

What do you like best about your job?
The service we provide is very diverse and because of this no two days are the same.

What's the most challenging part of your job? Working within the team and liaising

with community support teams to ensure that dental care is delivered in a way that best meets the needs of the patients without delay: this can on occasion be very challenging.

What are your outstanding ambitions?
I am always looking for new challenges.

What do you like to do outside work?
Going to concerts with my husband and visiting fancy restaurants.

Tell us a secret. I LOVE Robbie Williams (although I don't think that is a secret with my colleagues!)

What do you like about BDJ Team? It gives me all the latest updates straight to my PC.

What three things could you not live without (besides people)? My convertible car, iPad and Robbie Williams.

Deborah Ryan

Deborah Ryan is a dental therapist in private practice and the community dental service in London. She is very happily married to Robert Ryan, a world-famous author (well quite a bit famous). They have three children called Bella, Gina and Gabz..



How long have you worked in dentistry?
A long time, first as a dental nurse, then dental technician, then after three pregnant pauses, I retrained as a dental therapist.

Why did you choose dentistry for your career? Because folk need us, even when they don't realise they do!

Do you have any special responsibilities within your dental practice? Telling folk that they really need to see us regularly.

What do you like best about your job?
When said folk listen and realise they have improved health and comfort.

What is the most challenging part of your job? Apart from the demands of CQC and the GDC? Saying the same thing over and over (but I don't mind if folk listen - see above).

What are your outstanding ambitions?
To be a busy dental therapist IN PRACTICE (hello - any dentists out there?!)

What do you like to do outside work?
Be on a horse.

Tell us a secret. I love lifting big chunks of calculus.

What three things could you not live without (besides people)? Chocolate (I know it's cariogenic), horses and warm boots in the winter.

Andrena Forrester

Andrena Forrester is a 39-year-old dental nurse/receptionist at Johnstone and Hannah Dental Practice in Glasgow. Andrena lives in Scotstoun with husband Ross, an IT analyst, and children Lewis and Rebecca.

How long have you worked in dentistry?
Twenty-three years

Why did you choose dentistry for your career? It seemed respectable and I wanted to feel like I was part of an important team.

Do you have any special responsibilities within your dental practice? I am responsible for making sure the GP17s are completed and sent and payment schedules checked in my receptionist role, and staining and glazing CEREC restorations in my dental nursing role - that and watering the bay trees in the garden!

What do you like best about your job? The satisfaction of seeing patients' delight when they have their new CEREC crowns/inlays/veneers fitted, knowing that I was part of their production.

What is the most challenging part of your job? Trying to fit everything in and make time for emergencies - most days we have two or three CERECs each taking up to two hours to prepare, design, glaze and fit so can often run late.

What are your outstanding ambitions? To be able to do my job until I retire - and the rate dentistry is progressing it seems unlikely I will still have the energy to keep up!

What do you like to do outside work? I like to go to a few exercise classes in between organising my children's busy schedules. I also enjoy DIY projects at home.

Tell us a secret. I used to get mistaken for Lorraine Kelly - a lot!

What do you like about BDJ Team? The free online CPD is informative and accessible for all, and I also enjoy the interviews with other DCPs.

What three things could you not live without (besides people)? Hand cream, my woolly hat (in all weather), and my iPhone (according to my daughter).



TAKE PART If you would like to appear in a **FLASH INTERVIEW**, just email bdjteam@nature.com and include a digital photo of yourself.

bdjteam2014111

UV rays to prevent caries

By Brian Williams¹

Like electricity in the 1920s and 30s, ultraviolet (UV) radiation was very popular as a panacea for many ills. For example, it was common for large areas of skin to be irradiated to stimulate vitamin-D production in the fight against rickets, while smaller areas were often targeted to eradicate local dermal blemishes.

Great 'dental' claims were made for the benefits of UV rays – notably the prevention of caries! But gingivitis, stomatitis, Ludwig's angina, Vincent's angina, sinuses, fistulae and

many more oral conditions were all claimed to be much improved or cured by the rays. Fortunately, some proponents of UV were professional enough to advise the removal of the causative agent before irradiation.

The apparatus pictured was made by Arnold & Sons of London in the 1920s. It consists of an electric arc that uses a compound of carbon and tungsten to produce radiation rich in UV light. The UV lamp was easily portable and adjusted by means of the lightweight tripod stand **1**. Metal shields and tubes **2** enclose and protect the arc while allowing radiation to be emitted

through the small aperture **3** at the end of the tube onto a small patch of skin or directly into the mouth. Alternating current is supplied through a cable **4** attached to the back of the shielding.

One treatment regime involved a first exposure for one minute with each successive exposure increasing by a minute every two days. If blistering of the mucosa occurred it was recommended a week should elapse before continuing with treatment. But the size of the dose and the length of the treatment depended very much on the operator.



¹ Volunteer at the BDA Museum, retired general dental practitioner and honorary secretary of the Lindsay Society for the History of Dentistry

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BDJ Team continuing professional development



CPD questions – October 2014

CPD ARTICLE: Radiation protection in dental X-ray surgeries

- The Diagnostic Reference Level for adult intra-oral radiography is:
 - 1.5 mGy
 - 2.3 mGy
 - 82 mGy.cm²
 - 1.96 mGy
- A critical examination needs to be performed on an X-ray set:
 - by the practice every three years
 - by the practice when a new set is installed
 - by the installer when a set is installed
 - by the service engineer annually
- Additional shielding using lead or barium plaster is needed:
 - when the surgery walls are of stud partition construction
 - when the X-ray beam points towards an occupied space
 - when the workload exceeds 33 exposures per week
 - when the practice's RPA says it is appropriate



How do I take part in BDJ Team CPD?

BDJ Team is offering all readers **TEN hours of free CPD** in 2014 through our website. Just go to www.nature.com/bdjteam/cpd to take part!

- In general terms, which of these provides the lowest patient radiation dose in intra-oral radiography?
 - a rectangular collimator of dimensions 35 mm x 45 mm
 - a circular collimator of 52 mm diameter
 - a circular collimator of 60 mm diameter
 - a rectangular collimator of dimensions 5 mm x 150 mm

Missed **core** CPD?

You can complete *BDJ Team* CPD through our website, any time in 2014.

Just go to www.nature.com/bdjteam/cpd to find out how!

Topics covered so far

► March 2014: **The use of radiographs in clinical dentistry**



► April 2014: **Disposing of clinical and dental waste**



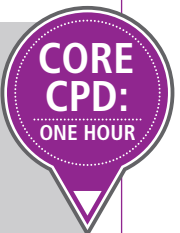
► May 2014: **Emergency oxygen therapy in the dental practice**



► July 2014: **Needlestick and occupational exposure to infections**



► August 2014: **Medical emergencies: the drug box, equipment and basic principles**



BDJ Team CPD – through the post



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3. I am answering the CPD questions in the _____ issue (PLEASE ENTER MONTH):

	A	B	C	D
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Q2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Please add any comments or feedback that you might have below or email bdjteam@nature.com.

