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MARCH 2015

SCOTTISH DENTAL

THE ESSENTIAL MAGAZINE FOR DENTAL PROFESSIONALS IN SCOTLAND

ABERDEEN DENTAL SCHOOL CRISIS INVESTIGATED

CLINICAL: GAIN UP TO FIVE HOURS OF VERIFIABLE CPD IN THIS ISSUE

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BARBARA LAMB

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MARGARET ROSS

COLLABORATION AT THE FRONT LINE

Academics and GDPs must work together to develop the treatments of the future, argues Jeremy Bagg

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JEREMY BAGG

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Editorial

WITH BRUCE OXLEY, EDITOR →
Get in touch with Bruce at
bruce@sdmag.co.uk

FADING NORTHERN LIGHT

What now for the crisis hit Aberdeen Dental School?

The advert in the BDJ probably sums up the crisis that has befallen Aberdeen Dental School. Wanted: a new Dean and heads of department for all four major teaching divisions: restorative, endodontics, paediatrics, and oral surgery.

It is understood to be unprecedented for a recruitment exercise of this scale to be made by an operating dental school in the UK and is indicative of just how far Aberdeen has fallen into what one external examiner recently privately described as "meltdown".

On one hand the advert may give hope to the beleaguered students, many of whom have given up enormous amounts both professionally and personally to attend this clearly dysfunctional school. On the other hand, it reveals the true extent of the crisis it faces and the enormous challenge ahead to get the school back on track.

However, despite the recent damning report by the GDC, the school stumbles on more in hope than expectation. It is astonishing that it can be, and has been, functioning at all without the key members of staff they now seek.

Is it any wonder that so many people were the unsuspecting victims of what the GDC refers to as "adverse events"...mistakes by any other name, inflicted by final year students who were not either ready to do the work, pressured into carrying it out or not properly supervised.

While the university, government and

Chief Dental Officer all maintain that they are dealing with the problem, the crisis that has befallen Alex Salmond's £18 million flagship health initiative in the North-east, faces key unanswered questions:

Where are they going to find senior, high-calibre professionals, with hard-won reputations at stake, to take on what has undoubtedly become a poisoned chalice?

Why after three consecutive investigations that made management fully aware of their failings, does the GDC, given its responsibilities to the public and profession, continue to allow the school to function at all?

Why when the internationally renowned schools at Dundee and Glasgow have been ordered to cut their UK student intakes by up to 28 percent and makes up the numbers with high fee paying overseas students, does the Scottish government continue to pour

Despite the recent damning report by the GDC, the school stumbles on more in hope than expectation

money into a sub-standard school that is producing a tiny fraction of the numbers in Dundee and Glasgow?

Indeed, why does the school exist at all other than as a misplaced sop to nationalist political aspirations?

Aberdeen now only has a matter of weeks before the GDC inspectors arrive in town again. Their next report on how far the school has improved in line with last year's staggering 52 recommendations, or fallen even further behind, will make fascinating reading.

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1

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(ON LATEST RADIOLOGY THINKING)
One the country's leading specialists in dental radiography, Barbara Lamb's teaching in sought after by dentists and their staff throughout the UK.

2

DAVID CAMERON
(ON ABERDEEN DENTAL SCHOOL)
Journalist and publisher, David Cameron owns Connect Publications and was news editor of The Scotsman and Scotland on Sunday.

3

JEREMY BAGG
(ON RESEARCH AND THE GDP)
Head of Glasgow Dental School, Jeremy Bagg has led one of Britain's foremost dental education establishments back to prominence in research and academia.

4

PAUL STONE AND TEAM
(ON BLACKHILLS CLINIC)
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HAVING HIS SAY →
Arthur Dent is a practising NHS dentist in Scotland
arthurdent@sdmag.co.uk

THE GDC IS FAILING THE PROFESSION

It's time for Scottish dentists to throw their weight behind a push to establish an independent regulator for Scotland

The GDC has recently been subject to a judicial review due to its poor accountability as well as the legality of the enormous increase in the annual retention fee.

The GDC continues to fail patients by not prosecuting the illegal practice of dentistry. The few it has prosecuted have received a tiny fine, and continued to practice unimpeded. Yet the GDC feels that a short crown margin on a single patient is more worthy of their attention, and a £76,000 FtP case, funded by us, the registrants. This does not help the reputation of the profession, nor does it protect the public.

The BDA has bared its teeth at last. Mick Armstrong, PEC Chair, said: "We regret that it came to this, but there was so much more at stake here than just fees. We've seen patients and practitioners left in limbo for over 18 months when complaints are raised, and hearings with an average price tag of £78,000. We had to take action because health professionals should not have to subsidise failure at their regulator.

"Today, a judge singled out a 'gaping hole' in the GDC's arguments. The regulator demonstrated it wasn't clear on its own powers and claimed it was facing 'administrative chaos'. And that utter confusion has allowed it to escape the full weight of the law."

Despite the above comments, the BDA's PEC has refused to support SDPC in its call for an independent Scottish Regulator. Even more astonishingly, the Scottish Government is not backing SDPC either.

ABOVE: Mick Armstrong has set out the case for health professionals to no longer subsidise GDC

This is bizarre for a ruling party which professes to want an independent country. This is a golden opportunity for them to develop a system we can be proud of, and show the other countries in the union how it can be done better.

A recent prosecution of a dually qualified dentist also leads us to believe that the GDC hold themselves above (rather than equal to) the GMC. The GMC had recommended undertakings only, yet the GDC pursued their own case. In this particular example, the GDC also disregarded the contemporaneous patient notes. My understanding was we wrote notes not just for our own use, but also for this eventuality, and they should be given greater weight than patient "recollection". After all, this is why the policeman's notebook is replied upon in court, and memory is very easily altered.

We should be judged by the standard of a "reasonably competent dentist", and now we are being held to a "gold standard". GDC allegations have included "you have not recorded whether the occlusion was checked. You have not recorded what type of fissure sealant was used". My assumption was always that caries would be removed and occlusion checked unless otherwise stated. This is pointless form filling and does not improve patient care. It certainly adds to the ever-increasing pressures on dentists. Neither the GDC, nor anyone else, have issued what they expect us to provide in our records. So we are being judged by standards that we can't know (known unknowns?)

Prolonged fitness to practise cases, and fishing expeditions when the original charge does not stick, are harming patients and the profession. Of course patients should have a right of redress, but this should first be

Prolonged fitness to practise cases when the original charge does not stick is harming patients and the profession

tackled by the treating practice, and failing that by local resolution. Of course a few cases should reach the GDC – but this should be the exception.

What are the consequences of this? Many experienced dentists are looking to leave the profession early – some to take early retirement, and some to do anything except continue with this misery. Very sadly some have committed suicide. A letter in the BDJ last year says that after conducting a poll, 40 per cent of respondents had contemplated suicide, and that formal investigation was considered the biggest stressor. Suicide is also under-reported due to guilt and shame. The Dentists' Health Support trust has seen a big increase in self-referrals.

What are the consequences for the patients? Slow resolution of their concerns, reduced experience in the profession, and the practice of defensive dentistry rather than good dentistry.

What should happen next? We should all support an independent Scottish regulator. We should demand our LDCs write to the minister and the CDO. We need to be the change we want to make.

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Partnership working between primary and secondary care is essential in establishing a more robust evidence base for oral health care in this country

JEREMY BAGG

ABERDEEN DENTAL SCHOOL FACES CALL FOR CLOSURE

Pressure has been ramped up on the troubled Aberdeen Dental School after one of Scotland's most respected dentists called for its closure.

The flagship health initiative by former SNP leader Alex Salmond, has been rocked by a damning GDC inspection, the third in three years.

It highlighted patient injuries, high fail rates, poor management and stressed students complaining to the university about the standard of their education. Now, John Drummond, a former president of the BDA, has called for it to be closed.

Writing in the BDJ, Drummond said: "In Scotland, we are over producing dentists significantly. Opening a dental school in Aberdeen has simply compounded the problem.

"It is time to face the reality that the new school was conceived politically and is protected politically."

He goes on to say that with a target of just 20 graduates a year – which *Scottish Dental* magazine has learned has never been reached – the school has never been a success and has "sucked" human and financial resource from the Glasgow and Dundee schools.

"While it will not solve the employment crises we face, it will at least help if the Aberdeen school is closed.

"How much longer must we pretend that all three schools can continue? Further cuts to Dundee and Glasgow will simply weaken further two excellent schools. It is time to pull the plug on Aberdeen," he said.

Now, an investigation by *Scottish Dental* magazine, published in this issue, has revealed the depth of the problems that exist, and have existed for several years, in Aberdeen. They include allegations that staff were, in the past, asked to give false information to GDC inspectors, were bullied and had careers threatened, and that students were so pressurised that they had to seek medical help.

However, Chief Dental Officer for Scotland, Margie Taylor, has mounted a staunch defence of the school and has urged the profession to accept that everything possible is being done to correct the situation in Aberdeen and to look to the future.

Ms Taylor said that she had read all the GDC reports into Aberdeen and was fully aware of the criticisms that they contained. However, she said that it was important to remember that the regulator had given the school "sufficiency" status and therefore had been satisfied that it was on course to recover from its difficulties.

She pointed to the severe problems the school had faced in recruiting high-quality teaching staff prepared to work and live in Aberdeen and to the shortage of patients that had been available for students to train with.

CONTINUED ON PAGE 37>

ABOVE: Former BDA president John Drummond; CDO Margie Taylor

IN DEPTH

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Turn to page 32 to read about a dental school in crisis

"WHILE IT WILL NOT SOLVE THE EMPLOYMENT CRISES WE FACE, IT WILL AT LEAST HELP IF THE ABERDEEN SCHOOL IS CLOSED"

JOHN DRUMMOND

GLASGOW CHEAPEST IN UK FOR PRIVATE DENTISTRY

Prices charged by private dentists in Glasgow are on average among the cheapest in Britain, according to a major survey of 20 cities around the UK.

The report compiled by WhatClinic.com looked at the charges made in five categories: check up, teeth whitening, root canals, dental implants and veneers. In all but two, the average charges reported by private dentists in Glasgow were the lowest in the country.

In the other two categories, Glasgow was the second lowest.

For example, the average cost of a check up in Glasgow was £31, the lowest in the UK, whereas the highest average cost was Bournemouth at £47.

Root canal treatment in Glasgow was recorded at an average of £158 whereas it cost £349 in Cambridge.

For implants, only Southampton was cheaper than Glasgow's £1,268 at £928. The most expensive was an average of £2,393, again in Cambridge.

And for teeth whitening, Glasgow's average charge of £231 was the second lowest, £17 more expensive than the lowest which can be found in Southampton. Interestingly, Edinburgh was, on average, significantly more expensive than Glasgow in every category.

The data was drawn from some 12,000 dentists around the UK.

DENTISTS RALLY TO HELP COLLEAGUE PAY £10K OF LEGAL FEES

Keith Watson tried to sue a patient, but had to abandon the case and pay a huge bill

Dentists around the UK have raised more than £10,000 to pay costs incurred by a colleague in Scotland who sued a patient for wrongly accusing him of negligence.

Keith Watson was only nine months qualified and working in a practice in Dundee when a patient, Andrew McIntosh, made a series of accusations against him. The case eventually came before the GDC where Watson was completely exonerated.

Furious that his name had been publically dragged through the mud for something he had never done, the dentist determined to sue the patient over the wrongful accusations. However, after almost two years of pursuing McIntosh at a cost of many thousands of pounds, Mr Watson reluctantly had to make the decision to end the case.

A court then ordered the dentist to pay the £10,000 legal fees incurred by his wrongful accuser. He agreed to do this in monthly instalments.

When the story appeared in the national press, colleagues around the country were incensed at his treatment and set up a fund to raise the money to cover the legal costs.

"Everything that man said about me was a pack of lies. He was just out to get himself money.

"What I was put through by the GDC was horrendous. It should never, ever have got that far. My name was dragged through the mud while his was kept private. So I was determined to teach him a lesson and the only way of doing that was by suing him and getting his name out in the public domain.

"But in the end I'd spent a lot of my own money and I'm not a wealthy man. And I had no idea how long I would have to keep spending money to win the case. So, I had to pack it in.

"It was then that I was told that I would have to meet his costs which started at around £3,000 but somehow soared to £10,000.

"I set out to teach this guy a lesson and even though I didn't see the case through I hope he will think twice before repeating his actions.

"I wanted to make all the dentists in Tayside aware of him so at least I have accomplished that. I only regret not being able to see it through to the end."

MORE INFORMATION
Supportive comments from across the profession can be found at: GDPUK.com. The fund can be reached at www.gofundme.com/keithwatson

"I SET OUT TO TEACH THIS GUY A LESSON AND I HOPE HE WILL THINK TWICE BEFORE REPEATING HIS ACTIONS"

KEITH WATSON

NOW TRENDING

1:7

FACT
One in every seven adults who has ever been to a dentist suffers from extreme dental anxiety*

* Source: National Smile Month

BURSARY AWARD WIN FOR EDI POSTGRADS

The EDI's Orna Ni Choileain and Niall McGoldrick have won the prestigious Association of Dental Groups Postgraduate Bursary Award for their project entitled Let's Talk About Mouth Cancer.

After being presented with their awards at the Royal College of Surgeons last month, Orna told *Scottish Dental*: "It's a great achievement to have our work setting up the charity recognised by other professionals on a national level."

Let's Talk About Mouth Cancer focuses on raising awareness in the general public and among professionals. With assistance from the Oral Surgery Department of the Edinburgh Dental Institute, three mouth cancer-screening events were held in 2014.

The first was in a marquee on Bristo Square, the second at the Edinburgh Canal Festival and the third on the Meadows during the Edinburgh Festival.

Let's Talk About Mouth Cancer has registered as a charity (SC045100) in order to build on and continue the good work. There are plans for further screening and educational events in March 2015.

"It's great to see the Association of Dental Groups helping young dentists all over the UK to build awareness of oral cancers at a local level," added Orna.

The bursary cash will now allow the team to continue to raise awareness of mouth cancer.

Every year, ADG's member companies invest significantly in the training and development of their people. The winning applicant received a prize of £5,000.

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"The ethos of the clinic is one of patient-centred excellence and professional co-operation, something that all staff are involved in"

PAUL STONE

DENTAL RELIEF FOR CHILDREN IN PALESTINE

A group of Scottish dentists who embarked on an aid to trip to Palestine over Christmas are now aiming to set up a permanent clinic in the area by the end of the year

Glasgow-based clinicians Tariq Bashir, Attiq Rahman, Omar Iqbal and Asid Khan set up the Dental Aid Network (DAN) last year in order to provide dental treatment to children in impoverished areas.

Over a six-day period in December, the charity treated more than 200 children and Tariq explained that the mayor of Nablus, the Palestinian town they visited, has even offered to provide premises to set up a permanent clinic.

He said: "Although we have been offered premises by the mayor we believe that, at this point, our own building would be too big a step for us. We believe that the best option just now would be a surgery within an existing clinic."

Omar is heading out this month (March) to talk to the charity's dental contacts in Nablus with a view to setting up a part-time clinic within an established practice. The DAN dentists are working closely with the Palestinian Children's Relief Fund and the local dental association, to establish the level of need and make sure they are not stepping on the toes of local dentists.

Tariq said: "We do need to be very careful how we go about this, how we set up these clinics and who we see. We also need to make sure that they are not open to abuse. This is not to be a free clinic for patients who should be paying to attend a local clinic, this is to see children, many of whom are in dire need of treatment."

For more information on DAN, visit www.dentalaidnetwork.org

ABOVE AND LEFT: More than 200 children were treated when the Dental Aid Network visited Nablus in Palestinian in December

SCOTS SPEAKERS FOR BDA CONFERENCE

Two leading Scottish dentists will be among the key speakers at this year's British Dental Conference and Exhibition which is returning to Manchester Central Convention Complex on 7-9 May.

Carrie Campbell, consultant in paediatric dentistry from the University of Glasgow, will be presenting in the Exchange Auditorium on Friday on the subject of dental anxiety in children and adolescents.

Also travelling south for the event is Kevin Lochhead, specialist prosthodontist and clinical director of Edinburgh Dental Specialists. Kevin will be presenting at the event twice in 2015.

Also at this year's conference will be Professor Daniel Wismeijer, head of department of oral implantology and aesthetic dentistry at the Academic Centre for Dentistry Amsterdam (ACDA). His presentation will look at the continued growth of digital dentistry and the impact on everyday practice.

The event's opening speaker, Basil Mizrahi, is another name to look out for. A specialist in prosthodontics and restorative dentistry, Dr Mizrahi runs a private practice, is an honorary clinical lecturer at the UCL Eastman Dental Institute, and Diplomate of the American Board of Prosthodontics.

Additional speakers include Francesco Mannocci, professor of endontology at King's College London Dental Institute; private practitioner and restorative dentistry expert Jason Smithson; Chris Tredwin, professor of restorative dentistry and head of Peninsula Dental School; Richard Cure, head of dentistry studies and clinical director of orthodontics at the University of Warwick; and Ian Dunn, specialist periodontist and undergraduate teaching lead in periodontics at Liverpool University.

A range of price options are available. Find out more and register online at www.bda.org/conference or by calling 0870 166 6625.

GOVERNMENT STATISTICS

FIGURES SHOW NINE OUT OF 10 PEOPLE REGISTERED WITH NHS

More people than ever are registering with an NHS dentist in Scotland, according to the latest government figures.

In addition, public health minister Maureen Watt MSP revealed that three quarters of those registering have attended an appointment within the last two years.

The latest statistics show that almost nine out of 10 people in Scotland are now registered with an NHS dentist, the highest ever reported rate.

It marks an increase of 75 per cent from the 2.6 million patients registered in 2007.

Of those registered, 74 per cent had seen their dentist within the last two years, although children were more likely than adults to have attended an appointment.

The figures also show the deprivation gap has closed for children who are registered with a dentist, 89 per cent for the most deprived and 90 per cent for the least deprived.

Ms Watt said: "Since 2007, we have made great strides in improving people's access to an NHS dentist with nearly two million more people registered under this government.

"It is particularly welcome to see that 92 per cent of children in Scotland are registered and that this rate remains high across all sections of society."

Separate statistics also published last month showed that the number of children receiving fluoride varnishing treatment across Scotland has increased considerably over the last year.

Nationally, the total number of three-year-old children receiving two or more fluoride varnishing treatments has increased from 12,192 in 2012/13 to 19,320 in 2013/14, a rise of 58 per cent.

For four-year-old children in Scotland, the total number receiving fluoride varnishing treatment has risen from 13,068 in 2012/13 to 21,235 in 2013/14, an increase of 62 per cent.

Ms Watt said that she would also be making a nationwide appeal for more people to attend their dentists for checkups.

CHILDREN'S HEALTH

ACTION DEMANDED TO CUT OBESITY AND TOOTH DECAY

Clearer food labelling, close liaison with dieticians, and a co-ordinated and multi-agency approach have been called for in the battle to tackle obesity and dental decay in children.

The call has come from the British Society of Paediatric Dentistry. In a paper published last month, the BSPD highlights the strong links between obesity in young people and tooth decay in permanent teeth.

Professor Damien Walmsley, Scientific Adviser to the British Dental Association, said: "This debate is a welcome reminder of the inherent connection between childhood obesity and poor dental health."

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CPD should be appropriate to the field in which you are employed and not just something that ticks the GDC box

MARGARET ROSS

KINLOCH RETURNS TO SDPC IN BDA ELECTION RESULTS

Robert Kinloch, former chair of the Scottish Dental Practice Committee (SDPC) and outgoing deputy chair of the BDA's Principal Executive Committee (PEC) has been reelected to the Scottish committee following the recent elections.

Kinloch, who will continue to serve as a member of the PEC, rejoins the SDPC representing Greater Glasgow and Clyde. Cumbernauld dentist Gordon Stewart, representing Lanarkshire, Ayrshire and Arran, and Dumfries and Galloway, is the only other new face while a further election will be required to fill the vacant seat in Grampian, Highland, Western Isles, Orkney and Shetland.

ABOVE: Former SDPC chair Robert Kinloch

The Scottish members on the UK General Dental Practice Committee remain the same apart from the Lanarkshire, Ayrshire and Arran, and Dumfries and Galloway health boards' seat which is still vacant after Graham McKirdy deciding against standing for another triennium.

However, there are four new faces on the Scottish Salaried Dentists Committee (SSDC) in the form of Claire Livingston (Borders), Philip McCallum (Highland), Andrea Roger (Highland) and Jennifer Szuster (Forth Valley).

YOUR AREA REPRESENTATIVES

SDPC CONSTITUENCY REPRESENTATIVES, 2015-2017:

GRAMPIAN, HIGHLAND, WESTERN ISLES, ORKNEY AND SHETLAND
Vacant Seat – a further election will take place in due course
Robert Donald, Nairn
TAYSIDE, FIFE AND FORTH VALLEY
Derek Harper, Kirkcaldy
Jeffrey Ellis, Coupar Angus
LOTHIAN AND BORDERS
Mark McCutcheon, Edinburgh
John Davidson, Edinburgh
LANARKSHIRE, AYRSHIRE AND ARRAN, DUMFRIES AND GALLOWAY
Arabella Yelland, Largs
Gordon Stewart, Cumbernauld
GREATER GLASGOW AND CLYDE
Gerard Boyle, Glasgow
David McColl, Glasgow
Robert Kinloch, Glasgow

SSDC SALARIED DENTISTS REPRESENTATIVES, 2015-2017:

Claire Livingstone, Borders,
Philip McCallum, Highland
Andrea Roger, Highland
Graham Douglas Smith, Isle of Skye
Jennifer Szuster, Forth Valley
Kate Wiseman, Glasgow

SCOTTISH REPRESENTATIVES ON GDPC, 2015-2017:

LANARKSHIRE, AYRSHIRE AND ARRAN, DUMFRIES AND GALLOWAY HEALTH BOARDS
Vacant seat
GRAMPIAN, HIGHLAND, WESTERN ISLES, ORKNEY, SHETLAND HEALTH BOARDS
Robert Donald
FIFE, FORTH VALLEY, TAYSIDE HEALTH BOARDS
Derek Harper
LOTHIAN, BORDERS HEALTH BOARDS
Maria Papavergos
GREATER GLASGOW AND CLYDE HEALTH BOARD
Robert Kinloch

NOW TRENDING

47%

FACT
Almost 50% of people notice someone's smile when they first meet*

*
Source: USA Today

NEW FIT FOR WORK SCHEME ROLLED OUT IN MAY

Practices must update their sickness absence policies to reflect the new Fit for Work scheme currently being rolled out across the country, the MDDUS has warned.

The government is in the process of a phased launch of the new system, with both the Scottish and English schemes expected to be fully operational by May.

Sickness absence costs employers billions of pounds each year and, as well as reducing costs, the purpose of the new scheme is to provide an occupational health assessment and general health and work advice to employees, employers and GDPs with the aim of helping individuals stay in or return to work.

MDDUS employment law adviser Liz Symon says: "We regularly deal with calls from practices on how to deal with long-term absence and it is hoped this new scheme will provide more transparency and help both employers and employees.

"It's in the best interests of the practice to ensure they create a productive workplace. It's not simply a case of preventing absence, but supporting employees if they need time off." There are two elements to the new service – assessment and advice.

Once the employee has reached four weeks of sickness absence, they will be referred by their GP for an assessment by an occupational health professional, who will look at all the issues preventing the employee from returning to work.

It is important to note that participation in the scheme is not compulsory and the employee must give their consent.

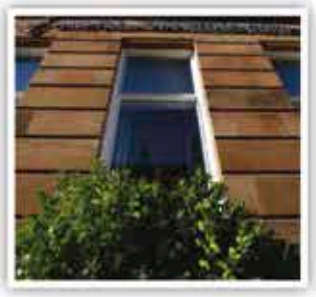
Following assessment, Fit for Work will provide employees with a return-to-work plan. "This plan should include recommendations to help them return to work as well as information on how to get appropriate help and advice," says Symon.

Employers, employees and GDPs will be able to access advice by phone or via the website.

Details of the scheme can be found at www.fitforworkscotland.scot/

PHILIP FRIEL
ADVANCED DENTISTRY
@ HYNDLAND DENTAL CLINIC

Philip Friel Advanced Dentistry is based in Hyndland Glasgow. The clinical team accept private referrals for:



- Dental Implant treatment - Drs Friel, Frew, Clare
- Bone grafting/Sinus Augmentation - Dr Friel
- Cone Beam CT scanning - Dr Friel
- Cone Beam CT reporting - Dr Neil Heath, Consultant Radiologist
- The treatment of Peri Implantitis - Dr Friel
- Endodontics - Dr Will McLean
- Orthodontics - Dr Imran Shafi
- Oral Surgery - Mr Craig Wales, Consultant Oral/Maxillofacial Surgeon
- Intravenous sedation - Dr Stuart McLaren
- Hygiene therapy

Referrals can be made securely on line via our clinic website www.philipfriel.com or alternatively, please contact the clinic for a referral pack.

We understand there are many options when referring patients and appreciate you trusting us with your referral. All new referrers are invited to arrange an initial visit to the clinic to view the facilities and discuss any specific wishes they may have for specific referral types.

We operate a very much open door policy at the clinic and run a number of informal courses, bespoke referral programmes and training/education for referring dentists. In addition, referring dentists in many cases will visit the surgery to observe the treatment of their patients. Any adjunctive work is returned to the referral source for completion as part of the treatment plan.

Dr William McLean BSc (Hons), BDS, PhD, PG Dip

We are delighted to welcome Dr William McLean to our clinical team.

Will qualified from Cardiff Dental School in 1997. He is the Academic Lead for Undergraduate Endodontics at Glasgow Dental School and also programme co-ordinator for the MSc Endodontics at Glasgow Dental School. In addition to this he has extensive experience in lecturing and running hands-on courses in Scotland. He currently sits on the council of the British Endodontic Society, which aims to promote endodontics in the general practice setting.

Will offers all aspects of endodontic treatment from first treatments to re-treatments and includes management of cases with complex anatomy, sclerosis, open apices, perforation repair and where possible, removal of fractured posts and separated instruments.

In addition to his clinical role within the clinic, Dr McLean will also provide a range of courses for general practitioners wishing to enhance their endodontics knowledge and skills.

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LOCAL COMPLAINTS PROCESS LOOKED AT

A top level working group is to be established to look at how a new "local process" can be set in place to deal with early stage complaints against dentists in Scotland.

Concern has been growing for some time that the vast majority of cases are being sent by health boards directly to the GDC when many could be resolved at local level.

Now, Chief Dental Officer, Margie Taylor, has told *Scottish Dental* magazine that she intends to bring together representatives from the BDA, indemnity organisations, health boards and the GDC to plan a new way forward.

Ms Taylor explained: "If practitioners get themselves into difficulty, then we want to pick this up early before it is a problem for them and definitely before it's a problem for patients. So what I'm discussing with colleagues just now is how we bring that about. We want the cases that come before the GDC to be the ones that should be there.

"If we can put in place some other method for dealing with cases at board level then that would be preferable."

Ms Taylor said that she recognised how traumatic an appearance before the GDC can be for dentists while also recognising the vital role that is played by the regulator.

But, she argued, there is a need to look much further back in the process,

Dentists claim issues could be resolved at local level instead of going to the GDC

and to change the emphasis of the debate.

"I would describe it as a 'quality continuum' in which you move the debate from discipline and punishment to helping practitioners to maintain quality. So it's a much more positive statement, it's about preventing people getting into difficulty," she said.

The BDA has been pressing for action. Director for Scotland Pat Kilpatrick said she had raised the issue with the CDO six months ago.

She said: "There was a circular sent out 2010/11, setting up local disciplinary committees to deal with matters locally, but health boards have never really used these local disciplinary committees because they say that they don't have the expertise and they don't have the people. I don't really understand why they have never taken place. We have found that NHS boards are now, in the absence of any local resolution, just referring cases straight to the GDC.

"So, we feel that there are a lot of inappropriate referrals in the absence of a local mechanism."

Ms Taylor said that she could not place a timescale on when the new process would be operational.

"WE FEEL THAT THERE ARE A LOT OF INAPPROPRIATE REFERRALS IN THE ABSENCE OF A LOCAL MECHANISM"

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FACT

A survey has found that the average cost of a check-up in Glasgow is £31, the lowest in the UK*

* Source: WhatClinic.com

RAY WATKINS

CBE FOR SCOTLAND'S FIRST CDO

Scotland's first Chief Dental Officer (CDO), Ray Watkins, has been awarded a CBE for services to healthcare in the Queen's Birthday Honours.

Watkins served as CDO from 1996 until 2007 and was involved in the introduction of the Childsmile programme and the expansion of the VT system in his time. Before his retirement last year he was a consultant in dental public health at NHS Grampian where he was tasked with wiping out the 35,000-strong waiting list in the region and the opening of Aberdeen Dental School, among other things.

The Cardiff graduate, who retired at the age of 65 after spending 43 years in dentistry, said: "It is quite an honour and as much an honour for the people I have worked with as much as anything.

"I've been very lucky in that I enjoyed dentistry from day one, I always enjoyed being a dentist. Whatever I did, I enjoyed it."

SCOTLAND'S FIRST IMPLANT MASTERS COURSE POSTPONED

A landmark master's degree in implantology has been put on hold due to essential restructuring of the Edinburgh Dental Institute's (EDI) current educational programmes.

The course has been put back a year and will go ahead in September 2016.

Professor Angus Walls, director of the EDI explained that extension of the existing two-year taught MClinDent programmes to offer a full three-year taught DClinDent is essential to maintain the institute's position as a leading provider of specialist training on the international market. This change also facilitates the processes for overseas students maintaining visas to study for their clinical courses.

He said: "Edinburgh has a reputation for running high-quality, well-organised, good clinical programmes and the last thing I want to do is run a bad one."

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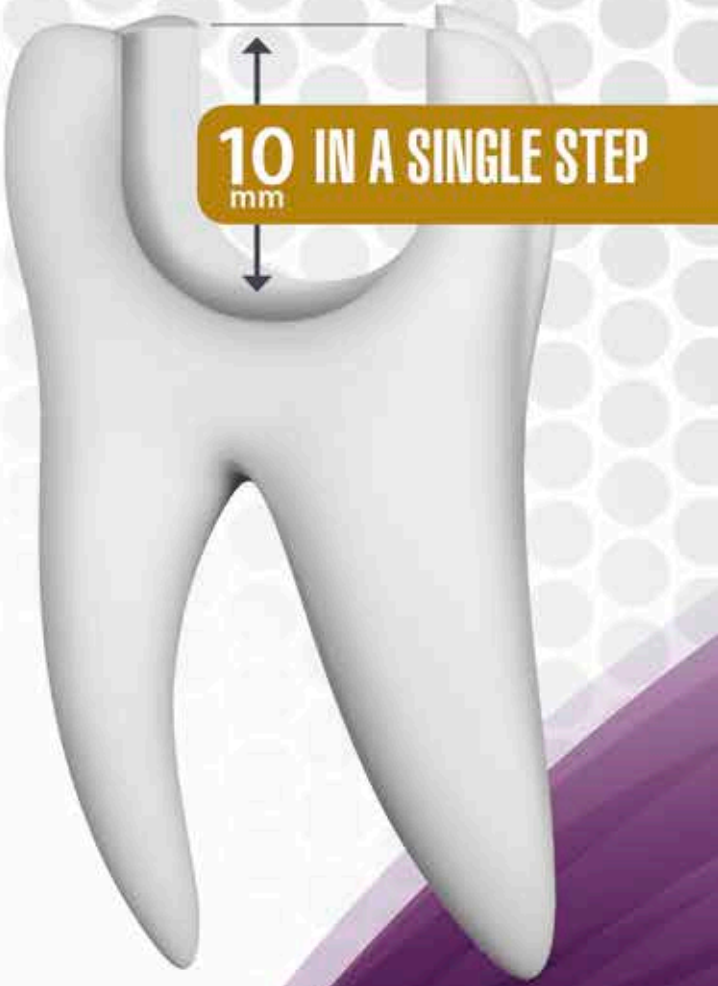

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NATIONAL SMILE MONTH BACK IN THE ACTION

The highly successful National Smile Month, run by the British Dental Health Foundation, is to return again this year

The UK's largest oral health campaign is set to take place between 18 May and 18 June, and aims to make a significant impact improving oral health at grassroots level and educating on the importance of good oral hygiene.

In its simplest form, National Smile Month promotes three key messages at the heart of good oral health: brush your teeth last thing at night and at least one other time during the day with a fluoride toothpaste; cut down on how often you eat sugary foods and drinks; and visit the dentist regularly, as often as they recommend.

In 2014, the campaign was more popular than ever before. More than 750 media articles covered National Smile Month, with more than 3,000 organisations registering their interest to promote better oral health.

Chief Executive of the British Dental Health Foundation, Dr Nigel Carter OBE, challenged the dental and healthcare profession to go one step further in 2015.

Dr Carter said: "Each and every year it amazes me how many people actively get involved in National Smile Month. We can look back on the last 39 years since the very first campaign and see how it has coincided with some of the major oral health improvements in the UK.

"Take the recent data on children's oral health for example. Much of the credit for these improvements goes to hard working dental professionals who go out into their local communities during the campaign to educate of the importance of good oral hygiene."

YOUNG DENTISTS TOLD TO ENSURE PATIENT CONSENT IS OBTAINED

Young dentists have been warned of the dangers of failing to obtain patient consent before commencing treatment.

Dr Raj Rattan, senior dento-legal consultant at Dental Protection, addressed delegates at the recent Young Dentist Conference, held at the Royal College of Physicians in London. He said: "The prospect of a patient taking legal action can be daunting for the most experienced dentists, let alone those who have relatively little experience in practice.

"It is vital that young dentists have an awareness of the factors that contribute to sub-optimal care. By controlling these factors, new clinicians can help to provide the best care to their patients and prevent potential complaints and claims.

"Consent is a two way communication process and it is important to engage patients in detailed conversation about risks and benefits and give them an opportunity to ask questions and seek clarification," said Dr Raj Rattan.

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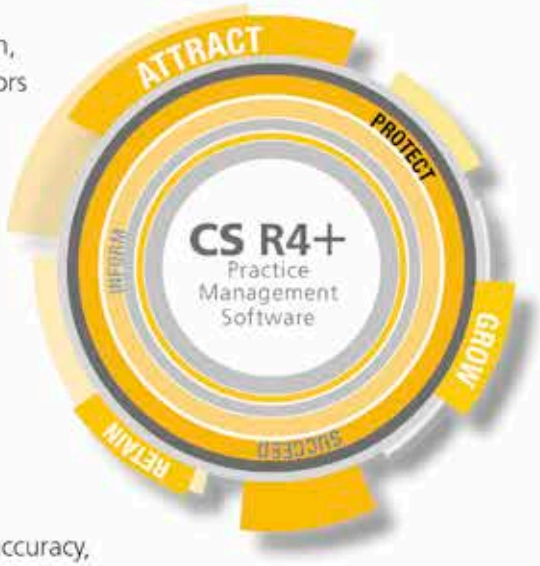

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STRESS AND STRESS-RELATED ILLNESS HITS DENTISTS AND DOCTORS HARDER THAN ANY OTHER PROFESSION. MENTAL WEALTH OFFERS EXPERT GUIDANCE ON HOW TO LOOK AFTER YOUR MENTAL HEALTH

Just what causes stress? When we identify a situation as a "threat", we activate the emergency "fight or flight or freeze" response. This is our natural self-preservation in the face of physical attack.

However, there are many other stressful situations, such as abuse, criticism by patients and peers or colleagues, family and friends, too much to do in too little time, juggling work, home and family commitments. The list is long.

When under stress, we notice immediate symptoms, such as a racing heart, shortness of breath, sweating, muscle tension, shaking, etc. But there are also long-term responses, including under-eating or over-eating, having difficulty falling asleep, waking early, or interrupted sleep, and difficulty getting up in the morning. Then there can be headaches, muscle tension, frequent colds or infections, heartburn, nausea, and diarrhoea, as well as being angry or irritable.

As if that were not enough, additional signs include difficulty in making decisions, forgetfulness, and constant tiredness. The most dramatic and undesirable manifestations are, of course, stroke, cancer or heart attack.

In the first instance, on the road to dealing with stress it is imperative that you take the following key steps:

1) identify the sources and/or cause of your stress
2) recognise the unhealthy ways that you may be coping with stress
3) learn healthier ways to cope.

If you have recognised any of the symptoms listed above, then it is time to address the problem.

You are stressed!

MORE INFO

Barbara Gerber is a psychologist and founder of the Equilibria Psychotherapy Clinic offering comprehensive mental health and counselling services. www.equilibriahealth.com

For more information on methods of coping with stress, go to www.sdmag.co.uk and read the next Mental Wealth self-help column from Barbara Gerber.

THE MOST DRAMATIC AND UNDESIRABLE MANIFESTATIONS ARE, OF COURSE, STROKE, CANCER OR HEART ATTACK.

UPCOMING EVENTS

WE'VE GOT THIS COVERED

10-14 MARCH
International Dental Show
Cologne
To find out more, visit www.ids-cologne.de

19 MARCH
AGM and talk by Prof Paul Tipton – 'Occlusal and preparation considerations for the treatment of the worn dentition'
Glasgow Odontological Society
To find out more, visit www.glasgowodontologicalsociety.com

19-20 MARCH
BDIA Tech Show
The International Centre, Telford
Visit www.dentaltechshow.com for more information.

16-18 APRIL
Irish Dental Association Annual Conference
Rochestown Park Hotel, Cork
To find out more, visit www.dentist.ie

17-18 APRIL
Dentistry Show/Dental Technology Showcase
NEC, Birmingham
For details, visit www.thedentistryshow.co.uk

17-18 APRIL
National Dental Nursing Conference
NEC, Birmingham
See www.badn.org.uk/conference for details.

23 APRIL
John Hutton Memorial Lecture
Royal College of Surgeons of Edinburgh
Visit www.rcsed.ac.uk to find out more.

23-24 APRIL
British Society of Dental and Maxillofacial Radiology Annual Scientific Meeting
Edinburgh
Fore more information, see http://www.liv.ac.uk/~ppnixon/

28-29 APRIL
MFDS Part 2 Preparatory Course
Royal College of Physicians and Surgeons of Glasgow
To find out more, visit www.rcpsg.ac.uk/events

29 APRIL
BDA West of Scotland Branch AGM
Royal College of Physicians and Surgeons of Glasgow
Email the branch secretary at andreafowler@woodsidedentalpractice.com

7-9 MAY
BDA Conference
Manchester Central Convention Centre
To find out more, visit conference.bda.org

14-16 MAY
ADI Team Congress
SECC, Glasgow
For more information, visit www.adi.org.uk/

14-16 MAY
ConsEuro 2015
QE2 Exhibition Centre
For details, visit www.conseuro2015.com

29-30 MAY
Scottish Dental Show
Braehead Arena, Glasgow
For details, visit www.sdshow.co.uk

3-6 JUNE
Europerio 8
ExCeL, London
To find out more, visit www.efp.org/europerio

1-4 JULY
IAPD Congress
SECC Glasgow
Visit www.iapd2015.org for more information.

10-11 SEPTEMBER
MFDS Part 2 Revision Course
Royal College of Surgeons of Edinburgh
For details, visit www.rcsed.ac.uk

11-13 SEPTEMBER
MFDS Part 1 Revision Course
Royal College of Physicians and Surgeons of Glasgow
To find out more, visit www.rcpsg.ac.uk/events

22-25 SEPTEMBER
FDI World Dental Congress
Bangkok, Thailand
Visit www.fdiworldental.org for details.

25 SEPTEMBER
Preparing for retirement and wealth management seminars
Edinburgh
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25-27 SEPTEMBER
BADT Conference
Birmingham
For more information, visit www.badt.org.uk

27-30 SEPTEMBER
International Orthodontic Conference
ExCeL, London
For details, visit www.wfo2015london.org

3-4 NOVEMBER
MFDS Part 2 Preparatory Course
Royal College of Physicians and Surgeons of Glasgow
To find out more, visit www.rcpsg.ac.uk/events

CONTACT US

To have your event featured in the *Scottish Dental* diary, email bruce@sdmag.co.uk

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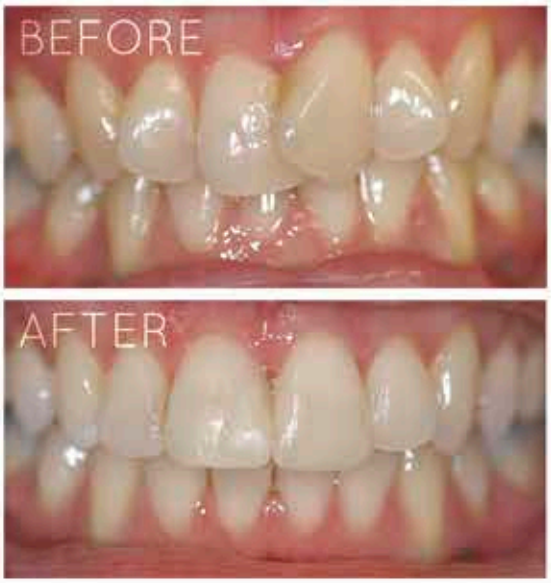

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The introduction of Cfast at my practice has been revolutionary producing outstanding results in a matter of weeks. It has the dual effect of being life changing not only for my patients, but also my dental practice. The support and advice from the Cfast team is exemplary! - Dr Ambi Jeyabalan, Glasgow.

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SCOTTISH DENTAL SHOW 2015

PROFESSOR EDWARD LYNCH TO PRESENT THE KEYNOTE LECTURE AT 2015 EVENT

29-30 MAY, BRAEHEAD ARENA, GLASGOW

KEYNOTE SPEAKER

One of the UK's foremost clinical academics has been confirmed as the keynote speaker at the 2015 Scottish Dental Show. Professor Edward Lynch, the former head of dentistry at the University of Warwick, will be presenting his '50 Top Tips for better and more successful clinical dentistry' at Braehead Arena on Friday 29 May.

Prof Lynch (right) is an associate clinical professor at Warwick and, as well as being on the GDC's specialist list for endodontics, prosthodontics and restorative dentistry, he has been awarded nearly 100 research grants totalling £5 million in his distinguished career.

Before joining Warwick, he was prof-essor of restorative dentistry and gerodontology at Queen's University Belfast as well as consultant in restorative dentistry to the Royal Hospitals from 2000 to 2010.

Prior to that he worked at the University of London for 20 years (1980–2000) as senior lecturer in conservative dentistry and honorary consultant in restorative dentistry, as well as being the postgraduate course organiser.

He has more than 500 publications under his belt, including chapters in books, refereed abstracts and has successfully supervised more than 50 MSc, MPhil and PhD students.

He is a consultant to the ADA, a spokesperson for the BDA, a scientific board member of the International Health Care Foundation and ISBOR, is on the editorial board of numerous International journals and has spent decades as very much a 'wet gloved' academic, treating many specialist referrals every week, previously in the Royal Victoria Hospital as well as in Saint Bartholomew's and the Royal London Hospitals.

With more than eight hours of verifiable CPD available, including seven CORE CPD lectures and featuring dedicated streams for technicians and the dental team, the Scottish Dental show is not to be missed.

MORE INFO
To view the full list of speakers, lecture timings and workshops available at the 2015 Scottish Dental Show, visit www.sdshow.co.uk

REGISTRATIONS ON THE UP

With only a few short weeks before the 2015 Scottish Dental Show begins on 29 May, delegate registrations have hit new heights.

At the time of writing, registrations were 103 per cent up on this time last year with show organisers predicting a record turnout for the Braehead Arena event.

Bruce Oxley, editor of *Scottish Dental* magazine, whose owners Connect organise the show, said: "It looks like 2015 is going to be our busiest show yet and the excitement is really starting to build.

"We are expecting in excess of the 1,500 delegates we welcomed to Braehead last year and they will experience more than 140 exhibition stands as well as a lecture and workshop programme that will be the best we have ever delivered."

MORE INFO
To register for your FREE delegate pass, visit www.sdshow.co.uk/register

SCOTTISH DENTAL AWARDS NEW CATEGORY FOR 2015

Due to popular demand, the organisers of the Scottish Dental Awards have introduced another new category for 2015 – Scottish Dental Representative 2015.

This award has been introduced to recognise the hard work and commitment of sales reps, territory managers and product specialists working in the Scottish dental market. A good dental representative is not just someone who can get your sundries order in on time or get the best price on new equipment, they become an essential part of your team.

The Scottish Dental Show's advertising sales and events manager Ann Craib said: "I'm delighted to be able to introduce this new category and get some well-deserved recognition for these guys.

"From training and support, through to social events and team building, there are some great reps out there who provide so much more than just sales of dental products and services."

To nominate an individual for the Scottish Dental Representative 2015 award, visit www.sdawards.co.uk and, don't forget, we need as much information as possible to enable our judges to effectively shortlist and then choose the winner, so things like client and customer testimonials are essential.

MORE INFO
To see all the other categories and details of the Awards Dinner on Friday 29 May at the Glasgow Thistle Hotel, visit www.sdawards.co.uk

To book a table at the awards call Ann on 0141 560 3021.

"DELEGATES WILL EXPERIENCE MORE THAN 140 EXHIBITION STANDS AS WELL AS A LECTURE AND WORKSHOP PROGRAMME THAT WILL BE THE BEST WE HAVE EVER DELIVERED"

BRUCE OXLEY, EDITOR SCOTTISH DENTAL MAGAZINE

AWARDS CATEGORIES NEW FOR 2015

- Scottish Dental Representative 2015
- Young Dentist of the Year
- Employer of the Year
- Digital Strategy of the Year

REGULAR CATEGORIES

- Scottish Dental Lifetime Achievement Award
- Practice of the Year
- Dentist of the Year
- Dental Team Award
- DCP Star
- Unsung Hero Award
- Laboratory of the Year
- Community Award
- Business Manager/ Administrator of the Year
- The Style Award

MORE INFO

Deadline for entries is midnight on 31 March. Please remember, the judges need as much information as possible in order to make their decision so, as well as filling in the form online, don't forget to send pictures and any supporting documentation to info@sdshow.co.uk

Good luck!

DELIVERING A STRESS-FREE EXHIBITION EXPERIENCE

STEVIE CAMERON'S EXHIBITION DELIVERY SERVICE AIMS TO TAKE THE HASSLE OUT OF ATTENDING THE SCOTTISH DENTAL SHOW

With so many dental events in the calendar, it can be tempting to think show to show and not plan beyond the next exhibition you are attending.

However, Stevie Cameron Event Logistics can take the stress out of the experience by arranging the collection, delivery and even the forwarding of all your exhibition equipment and materials.

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- Collect from your stand space after the event, even if out of hours or on weekends
- Return your consignments to your premises or forward to your next event.

Stevie said: "In our experience, exhibitors enjoy the freedom of having their items transported for them, meaning they only need to worry about getting themselves to the show."

Stevie Cameron Event Logistics Limited are offering an early bird discount for all bookings made before 30 April 2015 – another reason to let them look after you.

For more information or to book, phone 01355 238 559 or email info@cameronlogistics.co.uk

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Dispatches

WITH PAT KILPATRICK →
BDA director for Scotland
dispatches@sdmag.co.uk

GO LOCAL TO PREVENT GDC ESCALATION

Finding an answer to the crisis of confidence that has engulfed the GDC across the country lies here at local level in Scotland

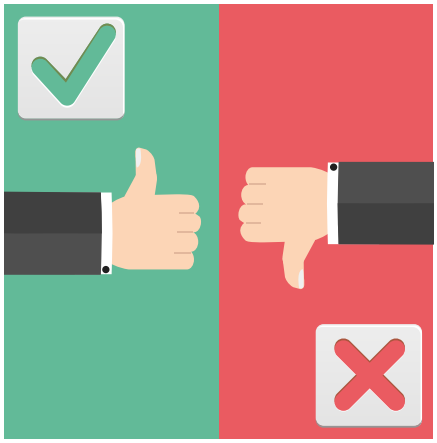
At the time of writing, the Westminster Parliamentary Health Select Committee (HSC) was due to hold its first ever accountability hearing into the General Dental Council's (GDC) performance. The focus of the hearing, to which the BDA has submitted written evidence, is whether the regulator is 'fit for purpose'.

The HSC and the BDA are not the only organisations to question this, but the hearing represents another opportunity to reflect on what is appropriate regulation for dental professionals.

The Public Standards Authority (PSA) – the regulators' regulator – advocates 'right-touch' regulation. It defines this as "always asking what risk we are trying to regulate, being proportionate and targeted in regulating that risk or finding ways other than regulation to promote good practice and high quality healthcare. It is the minimum regulatory force required to achieve the desired result".

We know, from the detailed evidence we submitted in support of our judicial review and from the PSA's last performance report, that the GDC has a long way to go to live up to these ideals.

The conduct of the GDC has also been the subject of parliamentary debate, even before the current review by the HSC. Last December, Sir Paul Beresford said in a Westminster parliamentary adjournment debate that the proposed annual retention fee (ARF) was more than double the fee that doctors pay to register with the General Medical Council (GMC). Health Minister Dan Poulter told MPs that he raised concerns about the fee increase directly with the GDC and reaffirmed the government's position on the need for a strong and transparent case for any such increase.



FIT FOR THE JOB: The regulators' regulator will rule whether the GDC measure up

The GDC also has a duty as a public body to demonstrate 'best value' – i.e. manage its resources efficiently and effectively. The UK government undertakes internal and external benchmarking of organisations to assess whether they succeed in doing this, comparing costs, productivity, quality and outcomes.

So how does the GDC fare when we benchmark registrants' fees with other health regulators? The GMC's fees are under £400 pa, the General Optical Council, the General Pharmaceutical Council, the Health and Care Professions Council and the Nursing and Midwifery Council are all less than £300 pa. In fact, the ARF for dentists is the highest professional registration fee in Europe and three times higher than Australia, South Africa or New Zealand.

Against the GDC's high fees, patients report high patient satisfaction rates with dentistry. The GDC's own survey of patients in 2013 shows that patient satisfaction was 96 per cent, with 61 per cent of patients reporting that they were very satisfied, and 35 per cent fairly satisfied.

The evidence the BDA submitted to the judicial hearing against the regulator and now to the HSC's accountability hearing reflects members' concerns – its lack of transparency, unwillingness to share information and its failings in dealing with the profession, are merely the top few.

As readers know, several representative groups have taken unanimous votes of 'no confidence' in the regulator

As readers of *Scottish Dental* know, several representative groups have taken unanimous votes of 'no confidence' in the regulator, including the BDA's Scottish Dental Practice Committee. This committee has also lamented the lack of local resolution to address an individual's fitness to practise. Since 2011, NHS Ayrshire and Arran is the only NHS Board in Scotland to have taken steps to deal with disciplinary cases locally. The lack of a local mechanism to prevent cases escalating to the GDC needs to be addressed urgently by the Scottish Government, and following discussions with the chief dental officer, a national working group is now being set up.

Whatever the outcome of the HSC's accountability hearing and this year's PSA review of the GDC, the BDA will continue to lobby for improvements and a better way of resolving performer issues at the local level.

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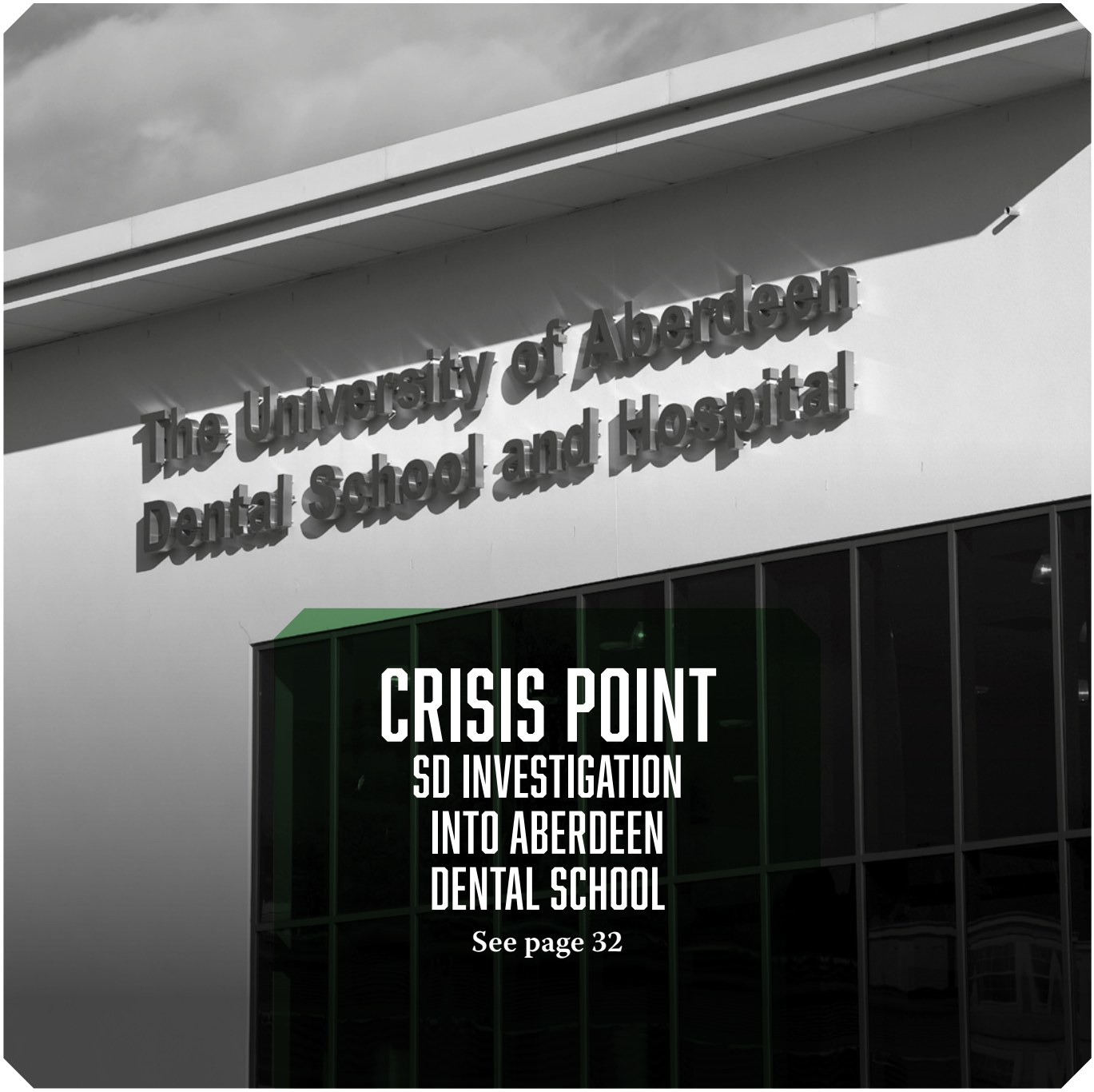
Indepth

REQUIRED READING FOR TODAY'S DENTAL PROFESSIONALS



CRISIS POINT

SD INVESTIGATION INTO ABERDEEN DENTAL SCHOOL

See page 32

BROKEN

ABERDEEN DENTAL SCHOOL HAS BEEN ENGULFED IN A VERY PUBLIC CRISIS AFTER A DAMNING GDC REPORT REVEALED A SWATH OF FAILINGS AND POOR MANAGEMENT. *SCOTTISH DENTAL* MAGAZINE INVESTIGATES

DAVID CAMERON MIKE WILKINSON

Hanging proudly on the walls of dental schools around the country are framed pictures of the graduating cohorts that universities have successfully guided into the profession.

On either side of each photograph of eager, newly qualified dentists, is a simple white glove. They are there to recognise and honour the fact that the entire class of that year passed.

In comparison, walk the corridors of the £18 million Aberdeen Dental School, opened with such ambition and expectation in 2008 by former First Minister Alex Salmond, and you'll look a very long time before you find anything similar.

In fact, in the three years that the school has been presenting students for their finals, not once has the entire year passed. And in an unprecedented failure rate for a UK dental school, almost a third of the class of 2014 failed.

Now, the school's fragile reputation has suffered a further damaging blow through a 52-page GDC report in which its inspectors catalogue a long and damning list of errors and deficiencies.

Most worrying for some, it includes the revelation that up to 12 NHS patients were "harmed" last year by poorly supervised and stressed senior students working under unreasonable pressure towards their final examinations. Many of the patients required remedial treatment to correct the errors that had been made.

The report, which was quietly published deep inside the GDC website in January, eight months after the GDC inspectors had visited the school, is the third consecutive critical inspection of the school that has revealed significant issues.

ALARM BELLS

Among the most alarming problems, the document reveals that in 2014:

- Students were put under "stressful" pressure to complete clinical prerequisites within inappropriate timeframes.
- School management failed to take precautions and mitigate dangers to patients.
- Up to 12 NHS patients were "harmed" by students in what are described as "adverse events".
- Students were not appropriately supervised according to the level of difficulty of

EYE OF THE STORM: Aberdeen Dental School is fighting to recover its battered credibility

the clinical procedure or their skill level.

- Tutors failed to appreciate students' lack of awareness of their capabilities… particularly when mistakes were being made.
- No or inadequate documentation was completed on pre-treatment assessment, anticipated risks, student/supervisor discussions and, in some cases, degree of case difficulty.
- Some supervisors did not have the suitable experience for the job they were doing.
- Lack of use of the reporting systems meant adverse events were not dealt with as quickly as they should have been.
- The number of staff supervising clinical training had to be doubled, putting huge pressure on the limited staff resources.
- Tutors on the Aberdeen staff had to be given additional safety training.
- "Passports" logging all students' clinical work were introduced as part of a major new monitoring exercise.
- Management communicated poorly with students, particularly over the introduction of prerequisite timescales.
- In examination assessments, the examiners placed more emphasis on knowledge than technical skill.
- Decisions on student progression were weighted towards numbers rather than quality.
- The school's data collection on students' clinical work – essential for examination assessment – lacked detail.
- A number of students had to complete clinical training AFTER graduating before being accepted onto the GDC register.
- Despite problems of recruitment being raised in 2012, staff claim that the school is still under-resourced.
- Management had misunderstood previous GDC instructions.
- The entire final year formally complained to the university management about their training.

NO OR INADEQUATE DOCUMENTATION WAS COMPLETED ON PRE-TREATMENT ASSESSMENT, ANTICIPATED RISKS, STUDENT/SUPERVISOR DISCUSSIONS AND, IN SOME CASES, DEGREE OF CASE DIFFICULTY

SERIOUS QUESTIONS

The situation is so troubling that the GDC has ordered a FOURTH consecutive inspection of the school to be carried out in 2015 to ensure that a raft of almost 50 new recommendations for improvement – including patient safety – are implemented.

Management at the school has responded to all the instructions and maintain that they have either addressed the issues raised or have plans in place to do so.

However, as the cloud of concern spreads ever wider over Aberdeen, serious questions are being asked both inside and outside the dental profession about the long-term future of the school and its role in the dental teaching community in Scotland.

Staggeringly, Aberdeen has recently advertised the posts of head of school

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PRIDE AND JOY: Former SNP Leader Alex Salmond fulfilled a pledge to the North-east

FROM PREVIOUS PAGE>

and FOUR of its most senior teaching positions, a situation described by one senior academic in Glasgow as "unprecedented".

And fanning the flames is barely suppressed anger that the crisis of confidence in Aberdeen comes at a time when Glasgow and Dundee dental schools, internationally recognised as two of the best in the world, have been ordered by the Scottish government to cut up to 28 per cent of the places they offer each year to UK students. More cuts may be on the way.

While money continues to be poured into the troubled Aberdeen school, staff at Glasgow and Dundee are scouring the world recruiting overseas students whose fees for tuition in Scotland will keep the universities' dental programmes alive.

Now, a growing number of academics and senior clinicians argue privately that the very existence of Aberdeen cannot be justified. It is, they maintain, little more than an expensive and failing vanity project by the former leader of the Nationalists who is, they suggest, simply currying favour in his own political backyard and ignoring the facts.

Scottish Dental magazine has carried out its own investigation into the Aberdeen school, talking to past and present tutors and students who paint a bleak, distressing and, at times, disturbing picture of what has been happening in the Granite City.

We have heard allegations of bullying, intimidation and threats to careers. We have even been told that there were requests being made to staff to falsify information being given to GDC inspectors during their examinations

WE HAVE EVEN BEEN TOLD THAT THERE WERE REQUESTS BEING MADE TO STAFF TO FALSIFY INFORMATION BEING GIVEN TO GDC INSPECTORS DURING THEIR EXAMINATIONS

of the school and its operations.

We have also discovered that, in recent years, a significant number of staff have quit the school in disgust at what they have witnessed and the treatment they have been subjected to. Others are believed to be looking to leave.

At one point in its troubled history, *Scottish Dental* has been told that whistleblowers on the staff submitted a 24-page list of complaints and grievances – along with supporting evidence – to management, the majority of which were upheld when investigated by the university's medical teaching hierarchy.

It has also been alleged that when quitting their posts and moving on to new jobs, many of the former staff have been obliged to agree to what are effectively "gagging orders" preventing them from talking publically about their experiences in Aberdeen.

In addition, students have lodged complaints with the GDC and the university about their training and treatment and a number are believed to have even looked to, or asked to be, transferred out of Aberdeen to other dental schools in the country.

Fearing retribution that could blight their careers, all those we have spoken to have been willing to talk of their experiences but none are willing to have their names published. One said: "No-one would actually believe what has been going on in Aberdeen. It is a national disgrace, a scandal that has gone unaddressed for years.

"The staff worked incredibly hard to try and turn the situation around but the management just would not listen to their concerns. Instead, we were subjected to bullying, intimidation and harassment. Some of us even had direct threats made to our careers.

"It is the students that I feel most for. They are good people, many of them have committed their futures and the lives of their families to go to Aberdeen and the way they have been treated is quite simply appalling. It is unforgivable.

"They don't know whether they are coming or going. They don't know if the school will be there in a year or two. And it is their careers, their very livelihoods that are at stake.

"The GDC reports, which were never shared with any of the staff, are only scraping the surface of what was going on in Aberdeen and, from what I hear, is still going on.

"People are worried and shell shocked at what has been going on and they want out."

However, it is the GDC report, issued on their website in January, that gives the most comprehensive insight into the crisis at Aberdeen.

The report breaks down into four sections, each one stipulating a number of requirements to be examined and graded as "Met", "Partly Met" and "Not Met".

Standard 1 is "Protecting patients". Here there were eight requirements to be met. In fact, only two were met, and six fell below the required standard and were only partly met.

Standard 2 is "Quality evaluation and review of the programme". This section contains seven requirements and once again, only two met the required standard. All the others were just partly met.

Standard 3 is "Student assessment" and in this section there were eleven categories. Staggeringly, not one of the requirements reached the met standard. All were only partly met.

Standard 4 is "Equality and diversity". Here, there were three requirements and all were met.

In Section 1, the report reveals that before the inspection in April 2014, management at Aberdeen contacted the GDC to say they had two significant issues. One was the continuing lack of NHS patients on whom students could develop their skills. The other was a cluster of nine "adverse incidents" that had occurred

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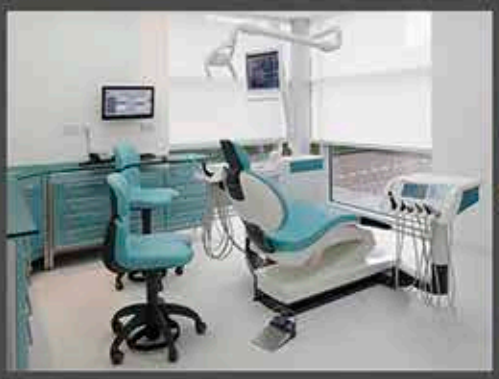
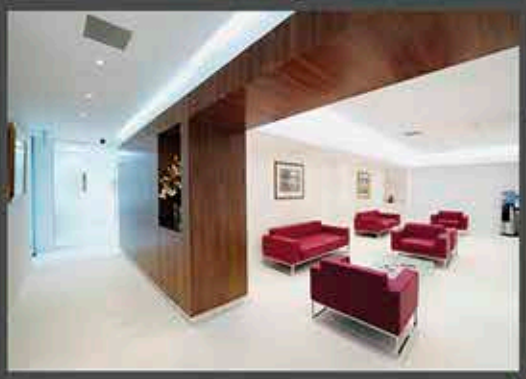
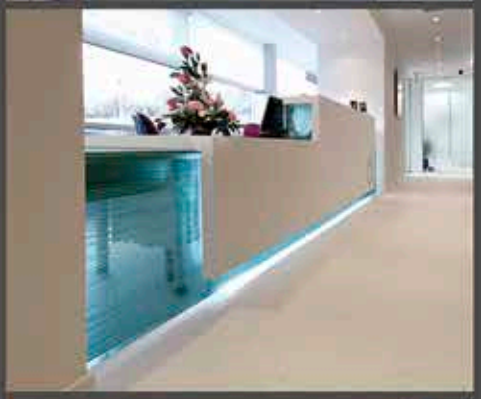
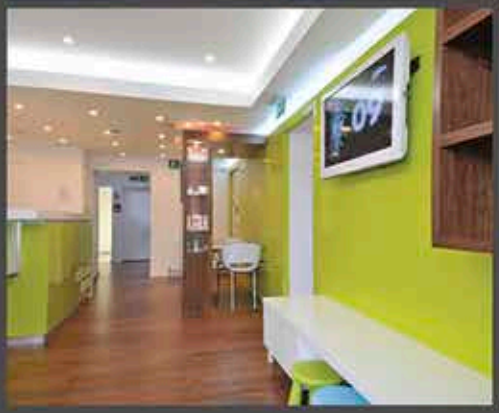
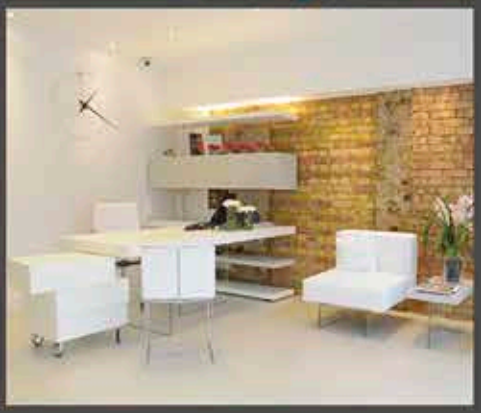




A FRESH APPROACH TO DENTAL DESIGN & CONSTRUCTION





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between January and March in which a number of patients had been "harmed".

This is in line with the timescale in which the university had stepped up pressure on students to complete their clinical prerequisites in the build up to being approved to sit their final exams.

The students were only given the detail of what they were expected to complete in February of 2014. This work had to be completed by April, dramatically and unexpectedly, ramping up the pressure on an "already stressed cohort".

Scottish Dental has learned that a number of students were so stressed by the pressure that was being heaped on them that they required medical intervention. A number were on anti-depressants.

In addition, the report states that school management told the students that the reintroduction of prerequisites was at the specific request of the GDC, a fact that would undoubtedly have further increased the pressure on the students. This is emphatically denied by the GDC who maintain that their instruction was misinterpreted by Aberdeen and that they gave no such order.

The inspection report states: "The GDC were informed that during this time, staff had started to raise concerns, for example in relation to over-booked or over-running clinics for pressurised final year students – both of which placed the clinical team under increased pressure generally.

"The school subsequently noticed an increased trend of incidents in clinics in excess of what they would normally expect in an environment where students are developing their clinical skills.

"The incidents were all identified by clinical supervisors, either as a result of a student asking for assistance or when the supervisor checked the student's work. On a number of occasions, it was reported that the students were not sufficiently aware to identify what had gone wrong.

"Between January and March 2014, the school identified a cluster of nine adverse events, all involving different students with no particular pattern in relation to the supervising staff member. Several incidents occurred while students were performing endodontic procedures, and included endodontic perforations; over-preparation of teeth; treatment of a wrong tooth; damage to teeth adjacent to those being prepared and tissue damage by sodium hypochlorite.

"Each of the patients involved was briefed at the time of their incident with the school immediately devising individual follow-up plans for remedial treatment."

Action was taken by the management at the school to address the problem and the GDC inspectors acknowledged this.

However, in the subsequent weeks, a further three adverse events involving students took place. Discovery of these may have been down to the increased control and supervision of the students, according to the report.

But the inspectors go on to say: "The inspectors were grateful for the School's openness and candour in sharing detailed information about these events. Nonetheless, they were concerned that a number of patients had been harmed and disappointed that the school did not identify the significant threats to the programme earlier.

"Previous inspection reports had highlighted the issues of patient supply, inadequate recording of clinical achievement and a lack of consistency within the programme for senior year groups.

"Further, the 2014 inspectors were concerned by the late re-introduction of the clinical prerequisites to the final year students. Students were informed in February 2014 of the numbers of treatments they would need to have completed by the end of April.

"The timeframe appeared to increase the strain in an already stressed cohort and stressful clinical environment. Early on, the school advised the inspectors that, as a result of regular discussion and monitoring, there were indications that the current final year cohort was not as strong clinically as other graduating year groups had been, yet it appeared that, at the point of direct delivery of care and treatment, there were inadequate precautions taken to mitigate the risk to patients and prevent the cluster of adverse events."

"EACH OF THE PATIENTS INVOLVED WAS BRIEFED AT THE TIME OF THEIR INCIDENT WITH THE SCHOOL IMMEDIATELY DEVISING INDIVIDUAL FOLLOW-UP PLANS FOR REMEDIAL TREATMENT"

In Standard 3 – Student assessment, the criticism continues unabated.

The report reveals that of the 22 students beginning the academic year 2013/14, three were not signed up for the finals. Of the 19 going forward, three were re-sitting students from the previous year, one of whom was not permitted to go forward after the first written paper. In total, 18 students sat the final examinations and of those, five failed.

Remarkably, and to the considerable concern of the GDC, two students had to be given more time to complete and pass their clinical work AFTER the examinations had been taken.

When looking into the process surrounding the examinations, the GDC discovered that the current model was heavily weighted towards testing students' knowledge rather than practical skills.

It states: "There was a distinct lack of assessment of the quality of clinical work within the unseen and presentation cases. Technical skills had not been suitably assessed at the point of delivery and were not scrutinised within the examination structure at all.

"The lack of a robust consideration of the clinical work became even more of a pertinent concern to the inspectors as, upon review, they were of the opinion that the standard of clinical dentistry displayed in the presentation cases was not universally strong.

"While it was accepted that the graduating cohort's exposure to the full range of procedures had been negatively impacted by the situation with patient supply, what was seen on occasions were examples of the lowest level of care expected of a safe beginner."

However, having received assurances from the school on those who passed having completed the required clinical work, the inspectors said that they were satisfied that those qualifying were of a similar standard to those graduating from other dental schools around the country.

"Ultimately, the inspection panel was assured that the students who passed the programme had reached a sufficient level of being fit to practise as a safe beginner and should be permitted to join the GDC register."

In support of the school's actions and responses both to the adverse incidents and the requests made by the GDC following the inspection, the inspectors said that the school's responses to the patient supply gap and the adverse incidents had been "appropriate". And they said that they had been satisfied that processes had been put in place to prevent a repetition of the events that has caused so much concern.

The report concludes by saying that the inspectors had been pleased to see that some progress had been made on implementing to the requirements that had been set out in the previous year's report.

They said that they had found evidence of a "good team ethos" among the senior tutors and that staff were working together to improve various aspects of the programme. They also said faculty interaction appeared to be strong.

"However, as would be expected by its seriousness, the clinical experience of the graduating cohort and the cluster of adverse events had an impact on the inspectors' consideration of several Requirements across the Standards for Education."

HAPPIER TIMES:
Jim Newton was the first man to lead the troubled dental school

The report goes on to say: "The programme leads assured the inspection panel that processes had now been put in place to avoid difficulties with patient safety and students completing their prerequisites in future. An advertising campaign targeting an estimated 22,000 unregistered patients in the local region had been encouraging. There was also evidence that the analysis of the cluster of adverse events would allow learning for positive system changes to improve patient safety management across the school. The inspectors concluded that they would need to review evidence that the changes to programme are being implemented effectively. Therefore, a re-inspection in the 2014/15 academic year will be required."

One external examiner who took part in the assessments summed up the depth of concern surrounding Aberdeen. He said simply: "That dental school is in melt down."

"ULTIMATELY, THE INSPECTION PANEL WAS ASSURED THAT THE STUDENTS WHO PASSED THE PROGRAMME HAD REACHED A SUFFICIENT LEVEL OF BEING FIT TO PRACTISE AS A SAFE BEGINNER AND SHOULD BE PERMITTED TO JOIN THE GDC REGISTER"

A spokesman for the University of Aberdeen, which runs the dental school, said: "All dental schools have rigorous standards of assessment, and as a relatively new dental school we are monitored regularly by the General Dental Council.

"We welcome these inspections as an opportunity for benchmarking our performance, and providing areas for learning, so that we continually improve in training student dentists for clinical practice.

"The GDC report noted the investigation and learning processes the school was following after 'adverse events' which had been reported while students were treating patients (which is under the supervision of fully-trained dentists).

"The patients involved were made immediately aware of any concern with their treatment and the problems were promptly addressed. There were no complaints from the patients, and all processes within the school were reviewed and further improved."

MORE INFO
Read the full GDC report on the regulator's website: www.gdc-uk.org

LOOK TO THE FUTURE SAYS CDO

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However, she revealed that there has been "considerable interest" in the post of director that is being advertised at present along with the positions of four of the most senior teaching staff at the school, a fact that critics say gives an indication of the depths of the problems facing Aberdeen.

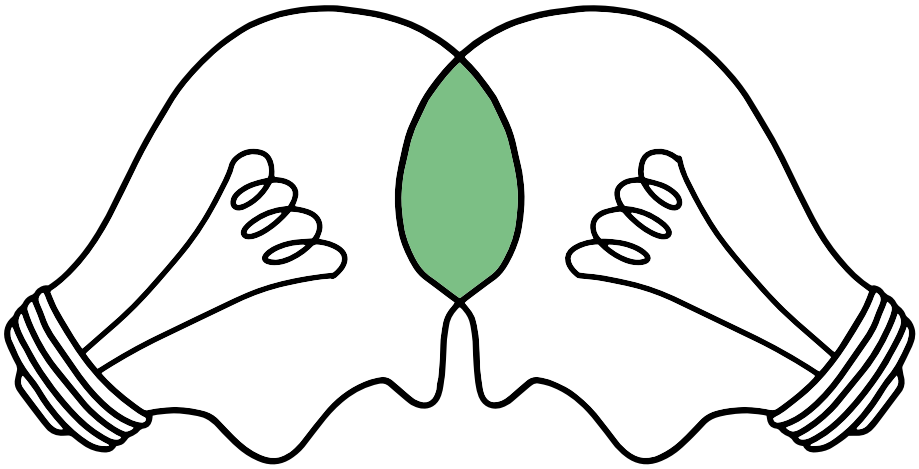
Ms Taylor added: "I think that what we have to do is to learn from this and look to the future. We have to make sure that we have dental schools in Scotland that are meeting the GDC standards."

A Scottish Government spokesman said: "Aberdeen Dental School was opened to address the shortage of dentists, particularly in remote and rural areas of Scotland.

"Student numbers are reviewed on a regular basis according to need, taking into account the total numbers of dentists, regional priorities and changing levels of oral health."

A spokeswoman for Aberdeen University said 84 per cent of graduates over the past three years have stayed in Scotland for vocational training with the majority moving into full-time work in Scotland.

She added: "We are delighted that we have graduates successfully working in local general practices in Aberdeen, Aberdeenshire and Highland, and one of our first graduates has just been appointed to a specialty training position in restorative dentistry here at the Aberdeen Dental Hospital – beating off national competition to gain this sought-after post."



COME TOGETHER

IT IS VITAL THAT PRIMARY CARE PRACTITIONERS ARE ENCOURAGED TO WORK IN PARTNERSHIP WITH ACADEMICS TO DEVELOP THE INNOVATIVE TREATMENTS OF THE FUTURE

JEREMY BAGG, MARK HECTOR, JAN CLARKSON, LINDA YOUNG

The majority of new dental graduates ultimately develop their careers in primary care practice. According to the 2012 Annual Report of Scotland's Chief Dental Officer[1], on 31 March 2012 there were 3,115 GDPs, both independent and salaried, contracted to provide NHS dental services in Scotland within the NHS general dental services framework. These primary care practitioners delivered over four million courses of treatment during 2011/12, representing by far the greatest proportion of dental care in the country. However, a commonly held perception is that oral health research, from which emerges the novel treatment concepts and procedures of the future, is the exclusive domain of academics in dental schools. This is a troubling and unhelpful divide on many levels:

- The evidence base for much of our practice in clinical dentistry is woefully inadequate – the Oral Health Cochrane Collaboration[2] makes this very clear.
- Dental practitioners have extensive experience of clinical and health-care delivery challenges, which is of great value in generating ideas for hypothesis-driven research.
- Clinical trials undertaken with secondary care patients may be of limited relevance and applicability to treatments required and performed in primary care dentistry.
- Many patients attending for primary care dental treatment have fantastic general health and can be a source of normal, healthy control cohorts of individuals in a wide range of areas of biomedical research.
- Oral health research implies far more than simply consideration of the mouth, as our understanding of the interactions between oral and systemic disease continue to develop.

The view of the authors, which is shared by many dental academics, is that

> "A COMMONLY HELD PERCEPTION IS THAT ORAL HEALTH RESEARCH ... IS THE EXCLUSIVE DOMAIN OF ACADEMICS"
>
> JEREMY BAGG, UNIVERSITY OF GLASGOW DENTAL SCHOOL

partnership working between primary and secondary care is essential if we are to make significant progress in establishing a more robust evidence base for oral health care in this country.

Opportunities already exist in Scotland through the Scottish Dental Practice Based Research Network (SDPBRN)[3] and UK-wide support is provided through the Oral & Dental Specialty Group of the UK Clinical Research Collaboration[4].

More recently, there have been further exciting developments in Scotland which could help to support further strengthening of the primary/secondary care interface in oral health care research.

The feature in this issue on the new Clinical Research Facility at Glasgow Dental School is part of an ongoing expansion of dental research, which is to be supported by a full-time Research Dental Nurse and half-time Research Dental Hygienist/Therapist, funded in the first instance for two years. Just as there is a need for primary and secondary care providers to collaborate in research delivery, the dental schools have recognised that they also are stronger when working closely together in subject areas

LEFT: Jeremy Bagg stresses the importance of partnerships between primary and secondary care professionals

DENTISTS HAVE FOUND RESEARCH TO BE LESS ONEROUS AND THEIR PATIENTS TO BE MORE INTERESTED IN TAKING PART

where there are complementary strengths. Dundee Dental School will also receive funding for a Research Dental Nurse and Research Dental Hygienist/Therapist under the same package from NHS R&D.

These collaborative arrangements are managed through the Scottish Oral Health Research Collaboration[5], which is supported by a full-time Research Administrator.

So what progress has already been made at the primary/secondary care oral health research interface and why should Scottish dental practitioners be interested, even excited, by these developments?

Well, a significant number are already off the blocks. Throughout Scotland primary care dentists are currently participating in a range of practice-based research studies that will provide much-needed evidence to support dentists in their day-to-day clinical decision making. These include a suite of randomised controlled trials that are funded by the National Institute for Health Research, Health Technology Assessment (HTA) Programme[6]. These trials are gathering evidence to help dentists decide the most clinically effective recall interval for their patients (the INTERVAL[7] trial), how often patients should be provided a scale and polish (the IQuaD[8] trial) and the most clinically effective method for the management of dental caries in children's deciduous teeth (the FiCTION[9] trial).

More than 100 primary care dentists in Scotland are taking part in at least one of these three trials. Support for dentists is provided by the trials' research teams in the University of Dundee and this includes training and support in recruiting patients, arranging trial appointments, delivering the trial interventions and managing any paperwork. Dentists also receive financial recompense through the payment of NHS R&D support costs.

In another national project, (the HOPSCOTCH[10] study), managed through the Scottish Oral Health Research Collaboration, the feasibility of undertaking an epidemiological study, within dental practice settings, of the prevalence, incidence, and determinants of oral Human Papillomavirus infection is being examined.

Participating dentists have found research to be less onerous and their patients to be more interested in taking part than they had anticipated:

"So far I have found being involved in the research very interesting and not too onerous time-wise. We've been able to incorporate the research with very little interference to our normal day-to-day patient treatments."

"In the beginning, I felt a bit nervous but once I'd done it a couple of times, I got into a pattern and my confidence grew."

"Our IQuaD recruitment went really well – our patients were an awful lot more enthusiastic about signing up for the whole process than I feared they might be."

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A recent development to support dentists' participation in research is the inclusion of practice-based research in the new arrangements for clinical audit[11].

Recognising the contribution of research participation to improving the quality of care delivered to patients, dentists taking part in many types of practice-based research studies will now be eligible to claim up to five research audit hours in any three-year audit cycle[12].

The first study to be awarded research audit hours is already under way. Dentists in 100 practices across Scotland have been invited to help develop and pilot a safety climate measure for use in primary care dental practice.

Without the participation of dentists in this research it would not be possible to provide a relevant and effective resource to support dentists to improve safety in their practices for patients and dental teams.

Dentists participating in this research can claim three hours of audit credit, and in the first four weeks of the study more than 80 dentists have agreed to take part.

RAPID EVALUATION PRACTITIONERS

One way dentists can find out more about opportunities for participation in practice-based research is to become a SDPBRN Rapid Evaluation Practitioner (REP). REPs are dentists who have an interest in, or want to be involved in, research and who have indicated a willingness to participate in approximately four projects a year. SDPBRN is committed to providing REPs with a range of feasible research projects to help improve the evidence base for primary care dental teams and bridge the gap that exists between research and practice.

Projects include some on a smaller scale, such as telephone interviews to help inform the development and implementation of SDCEP guidance, and larger projects that may attract financial recompense such as piloting processes for collecting epidemiological oral health data in general dental practice.

In addition to the suite of HTA trials described above, recent projects where REPs have participated include piloting of the national antibiotic audit and the dental safety climate measure, informing the scope of the proposed SDCEP guidance for the dental management of patients taking anticoagulant and antiplatelet drugs and helping to explore the economic impact of role substitution among general dental practices. REPs also have the opportunity to attend SDPBRN's postgraduate research training events. Dentists wishing to become REPs or who wish to find out more about the REP initiative can do so by completing the REP enrolment form that is available at www.sdpbrn.org.uk or by emailing sdpbrn@nes.scot.nhs.uk.

In summary, we recognise that research into improving the quality of care in dentistry will only be really effective if innovations can be shown to work in the primary care setting.

Encouraging dental professionals in the primary care sector to engage with the research groups is critical if we are to enhance the scope and quality of the research questions, demonstrate that ideas can work in practice and ultimately improve the care provided for patients.

As we have said above, this approach is already well under way, but we are calling on your assistance to help make it even more effective.

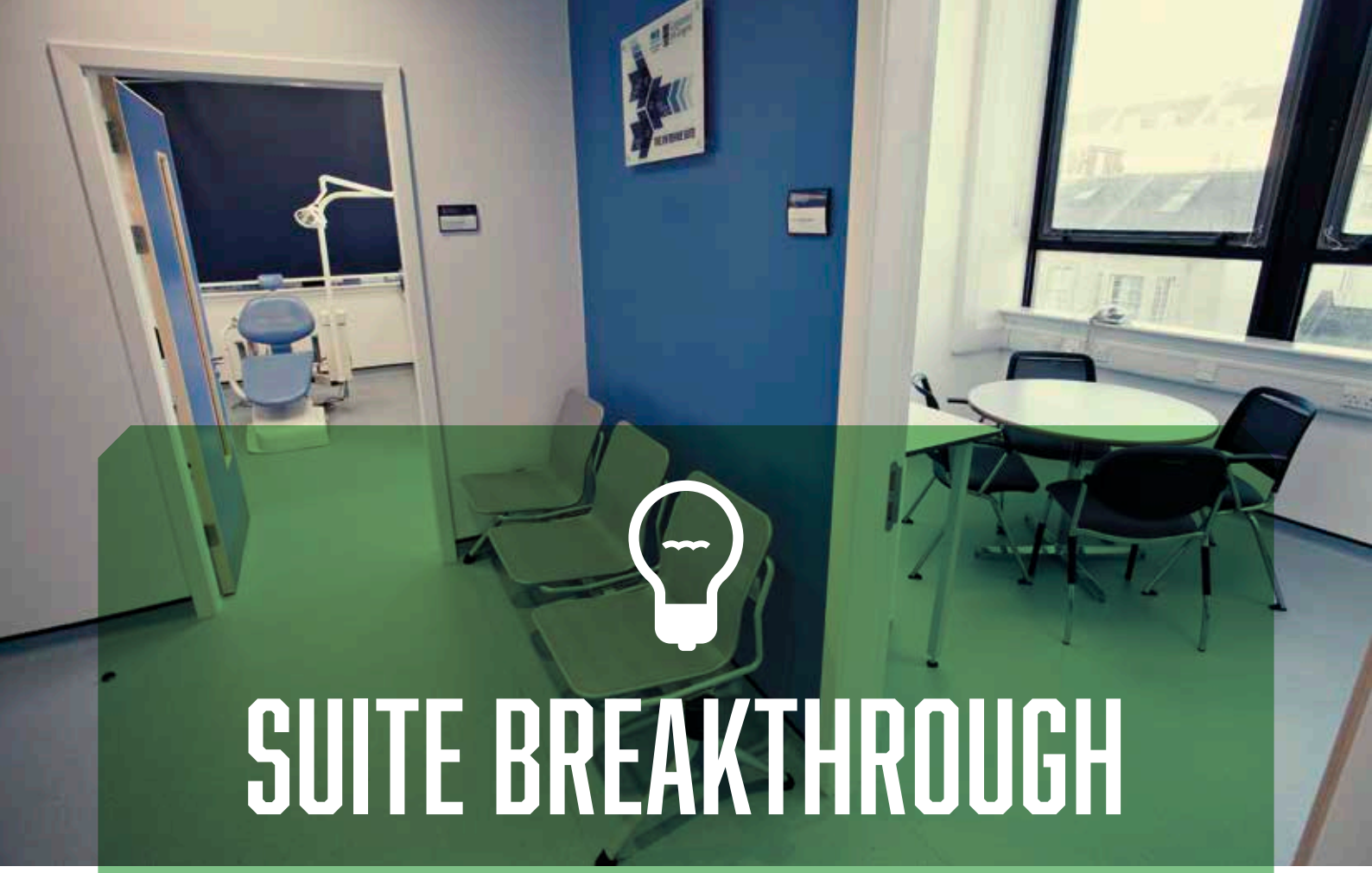
ABOUT THE AUTHORS

Prof Jeremy Bagg, Head of University of Glasgow Dental School

Prof Mark Hector, Head of University of Dundee Dental School

Prof Jan Clarkson, Co-Director Dental Health Services Research Unit; Director, Effective Dental Practice Programme, University of Dundee Dental School

Linda Young, Research Manager, Scottish Dental Practice Based Research Network, NHS Education for Scotland.



SUITE BREAKTHROUGH

GLASGOW DENTAL SCHOOL'S NEW £225,000 JIM RENNIE SUITE WILL TAKE RESEARCH CAPABILITY TO NEW LEVELS OF EXCELLENCE

BRUCE OXLEY MIKE WILKINSON

At the end of Level 7 of Glasgow Dental Hospital lies a quiet new facility comprising a simple two-chair surgery and interview room.

However, the unassuming outward character of the Jim Rennie Suite, and the Clinical Research Facility (CRF) that lies inside, masks its true significance.

This £225,000 unit has the potential to take the research capability at the hospital to new levels of excellence.

"The CRF allows us to embark on the type of research, particularly around clinical trials, that we couldn't have dreamed of before because we never had ready access to the number of chairs we needed," explained Professor Jeremy Bagg, head of Glasgow Dental School.

In overall charge of the management of the centre will be Dr Shauna Culshaw, senior clinical research fellow and honorary consultant in periodontology.

She said: "Obviously the clinics are fairly pressured and in terms of keeping a patient in a chair for an additional set of samples to be taken, or taking additional information from the patient, that can't be done in a routine treatment clinic. We just don't have the capacity and the time to do it. So, having this facility on hand, literally two doors down from us, is phenomenal.

"When we are taking samples from these patients, it is important that they are dealt with very quickly and the research labs are only two flights of stairs away. That is a fantastic set-up from my point of view."

Prof Lorna Macpherson, director of dental research at the school, explained that the interview room is already being used for the HOPSCOTCH study into the prevalence of HPV as well as her own community oral health research group.

She said that the interview room allows researchers to spend time talking to patients and their families, as well as providing much-needed privacy when filling out questionnaires, which can often cover sensitive information.

The facility is named in honour of Dr Jim Rennie CBE, the former dean of postgraduate dental education for NHS Education for Scotland. Dr Rennie played a key role in the national strategy and resource allocation for Scottish dentistry until his retirement in 2011.

The suite is supported by Glasgow Dental Educational Trust, NHS Education for Scotland, NHS GGC Research and Development Directorate, and the University of Glasgow Dall Endowment Fund.

THE CRF TEAM

PROF JEREMY BAGG

Head of Glasgow Dental School and professor of clinical microbiology. Prof Bagg led the development of the Clinical Research Facility and Life Support Training Facility that make up the Jim Rennie Suite.

PROF LORNA MACPHERSON

Honorary consultant in dental public health, and director of dental research at Glasgow Dental School. Prof Macpherson leads the Community Oral Health Section and Research Group and is co-director and evaluation lead of the Childsmile programme.

DR SHAUNA CULSHAW

Senior clinical research fellow and honorary consultant in periodontology. Dr Culshaw will be in overall management of the CRF. As part of the infection and immunity research group at the hospital, Dr Culshaw will be using the CRF in her work looking at the immune response in the mouth, particularly in relation to the aetiology of periodontal disease.

THE NEW BLACK

THE WORK OF BLACKHILLS SPECIALIST DENTAL CLINIC HAS BEEN RECOGNISED IN A PRESTIGIOUS PARLIAMENTARY REVIEW. HERE, THE TEAM OUTLINES THEIR ETHOS AND HOW IT WORKS TO THE BENEFIT OF ALL

BLACKHILLS TEAM MIKE WILKINSON

For over a century dentists have tended to work in isolation, providing treatment for their patients with little or no peer review. Blackhills Specialist Dental Clinic is different. From the outset the intention was to create a setting where a number of specialist clinicians can work closely together to provide the highest standards of contemporary dental care, while continually peer reviewing each other's work.

We have eight General Dental Council registered specialists covering all the main adult dental disciplines, together with a dedicated support team of nurses and clerical staff, working out of a purpose-built clinic just a few metres from the main A9 trunk road running through the heart of Scotland.

The clinic receives referrals from dentists who require additional specialist support for more complex cases, but also accepts patients who present directly for advanced treatment.

The ethos of the clinic is one of patient-centred excellence and professional cooperation, and this is something that all staff are involved in, bringing a shared culture of:

- 100 per cent patient focus –the needs and wishes of the patient being paramount
- a genuine interest in all our patients – the only way to determine their requirements fully
- a willingness to acknowledge when a patient would be better seeing another colleague for treatment
- a 'no blame' principle – because nobody comes to work to cause harm.

> "THE ETHOS OF THE CLINIC IS ONE OF PATIENT-CENTRED EXCELLENCE AND PROFESSIONAL COOPERATION, SOMETHING THAT ALL STAFF ARE INVOLVED IN"
>
> PAUL STONE, CLINICAL DIRECTOR

There is a genuine passion to deliver the best treatment for each patient, and this often requires the combined expertise of several specialists. We have meetings to discuss and plan the more complex cases, and all those involved then attend the patient's appointment to bring their different perspectives and skills to help determine the correct diagnosis and relevant treatment plan. This is a really important aspect of our approach to patient care, requiring us to take time to identify and appreciate other possible background issues, and it is always valued by our patients. Many of our patients have only experienced 'problem driven' dentistry, so our 'patient-based' approach, putting the person rather than their teeth at the core of all considerations, is a revelation.

Some of the patients we see at Blackhills Clinic provide significant challenges, and therefore the availability of

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LEFT: A team approach has been built into the culture at Blackhills

THERE IS A GENUINE PASSION TO DELIVER THE BEST TREATMENT FOR EACH PATIENT, AND THIS OFTEN REQUIRES THE COMBINED EXPERTISE OF SEVERAL SPECIALISTS

FROM PREVIOUS PAGE>

the most advanced diagnostic and treatment facilities is essential. We were one of the first dental clinics in the country to have its own computed tomography (CT) scanner to help establish accurate diagnoses. As well as the latest materials and instrumentation, we have also invested in full digital x-ray facilities, a clinical operating microscope and a surgical device that cuts bone using ultra-high frequency vibrations (resulting in greatly reduced discomfort and swelling).

The reputation of the clinic is now such that dental companies often approach us to carry out cutting-edge research and clinical trials. We were the first place in the world to use a brand new dental implant material in a human. This innovative alloy won the Frost & Sullivan Medical Device Technology of the Year Award, and is now widely regarded as the most sophisticated implant material available, having improved physical and biological properties compared with traditional options. Blackhills is also working with a Swiss company in researching a new bone-graft material that avoids additional more invasive surgery – the only centre in the UK currently involved.

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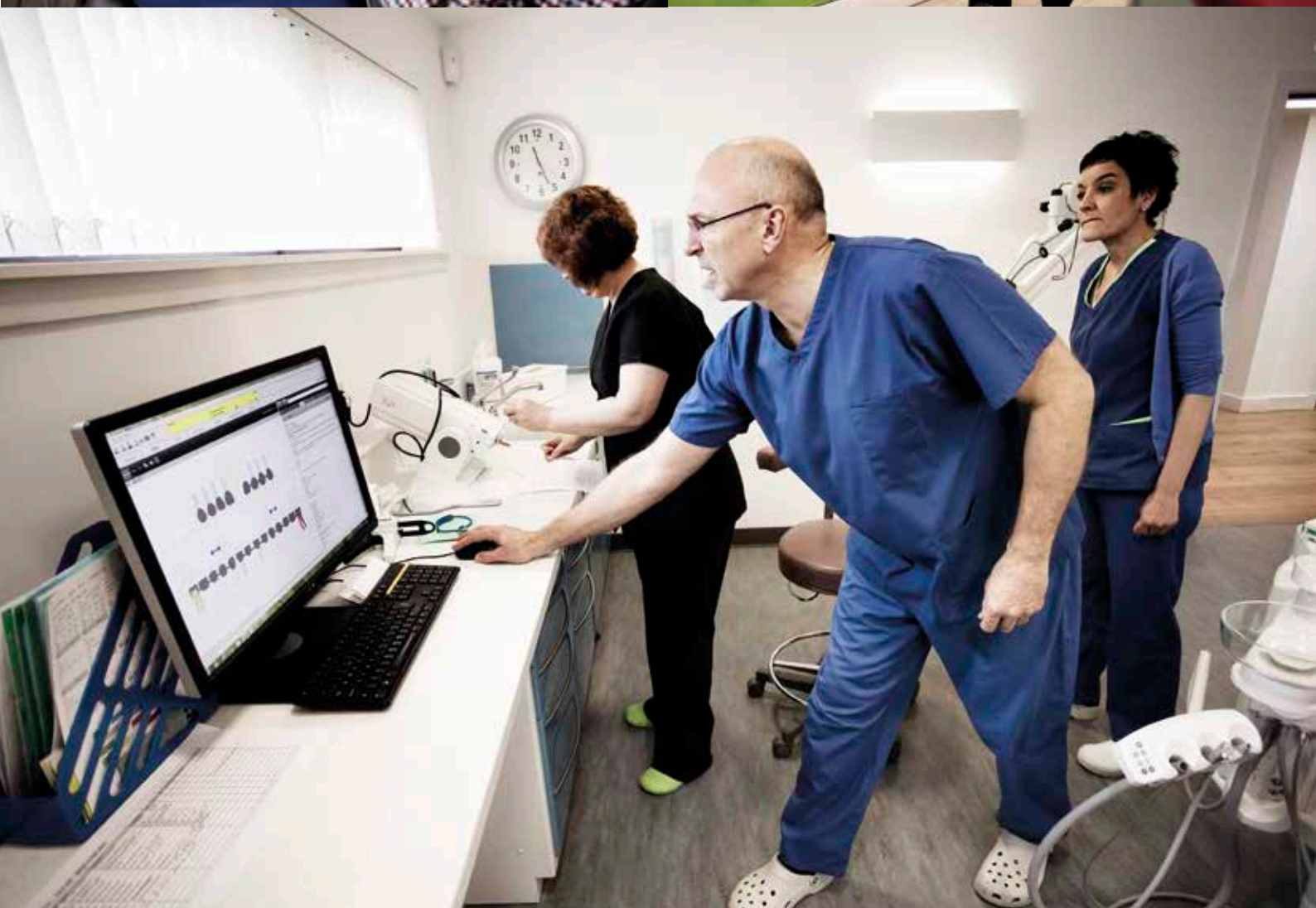
RIGHT: A day in the life of Blackhills Specialist Clinic as the team works together to meet patient needs


Blackhills
CLINIC



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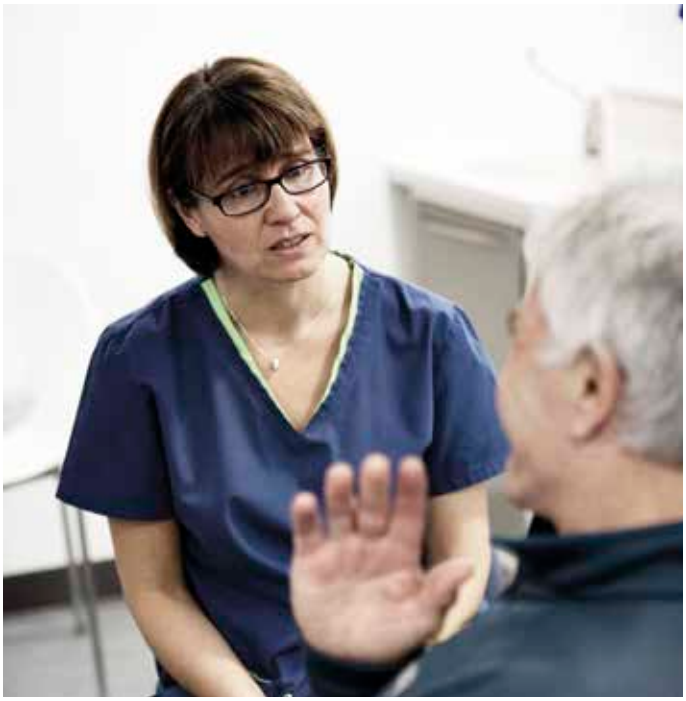
We receive frequent requests to provide articles and comment for various professional publications, and most of our specialists also lecture in the UK and overseas. This gives us the opportunity to spread the message of how we work and interact, both within the clinic and with other dental professionals. We are often involved in ongoing clinical mentoring of dentists, nurses and therapists, and we run a variety of educational courses within the clinic.

Most of the specialists also hold part-time hospital consultant or senior academic posts, and so communication within the clinic and with the 640 dentists who send patients to us is vital. To facilitate communication, we use a combination of regular internal staff meetings, weekly email updates and clinic staff training away-days, as well as newsletters and numerous symposia and meetings for the dental practices. With such a diverse group, it is fair to say that effective communication remains our biggest challenge, but with increasing numbers of patients and a staff retention rate of virtually 100% we believe we are succeeding.

Blackhills Clinic would like to be seen as the 'go-to' centre for high-quality specialist dentistry. The clinic has received recognition at a national level (Scottish Dental Magazine's Best Specialist Referral Practice 2013), and is now realising an international reputation, which reflects the skills and expertise of the specialist clinicians and supporting team. All clinicians are members of various national and international dental associations and societies, and many have also held senior positions in these organisations as well in universities and on Royal College committees.

We also work to support general dentists by:

- accepting referrals for more challenging and difficult treatment
- carrying out specific complex procedures so that the patient can return to his or her dentist for the more straightforward



ABOVE: Consultation and explanation are essential components in the Blackhills success story

aspects of the treatment plan – we refer to this as 'share the care with a specialist'

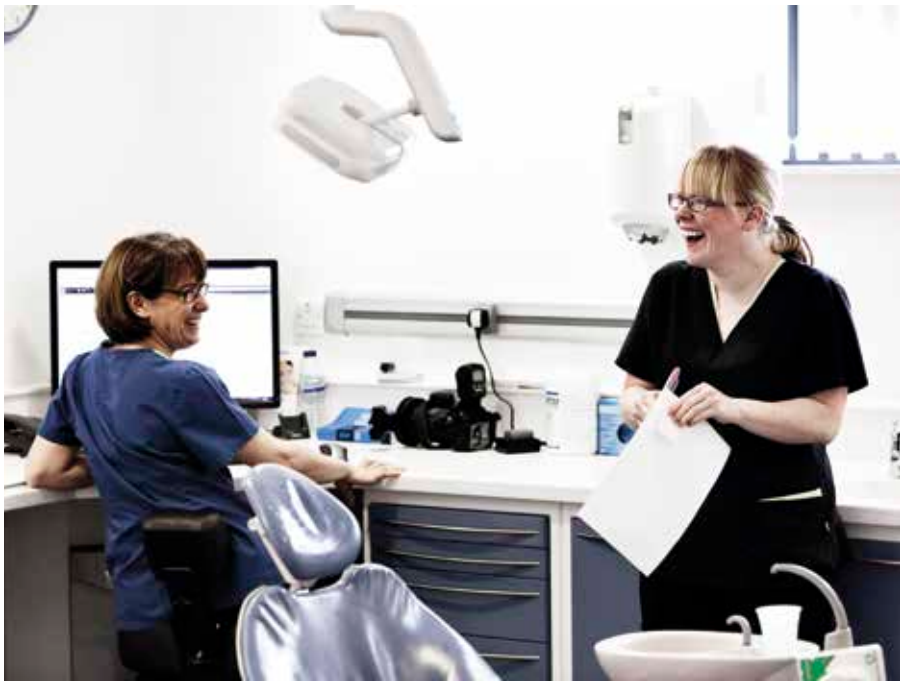
- giving advice about problems and issues
- coordinating educational events to raise the knowledge base for dentists and their nurses, providing continuing professional development for the regulatory body.

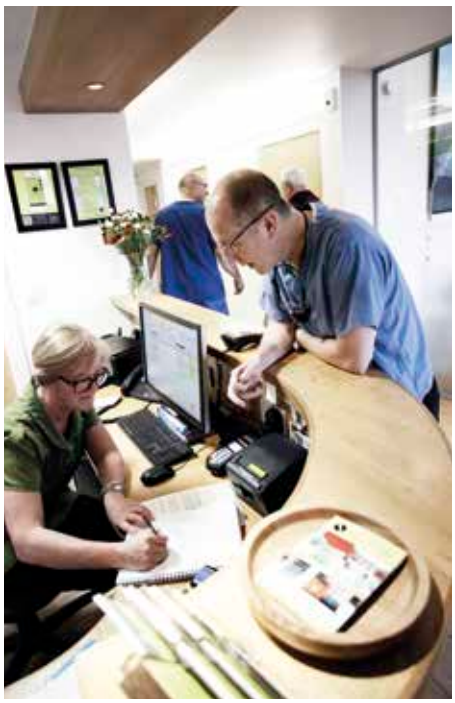
Despite all the technology and involvement we have with other dentists, we are fully aware that our most important assets are our staff and specialists. Their commitment to the provision of exceptional patient care underpins and reinforces the clinic philosophy. We always ensure that the working environment is conducive to this, and make every effort to provide suitable rest facilities and work-based educational support (including lifestyle and postural advice). There is also an incentive scheme linked to the clinic's monthly financial targets, giving additional time off. We have found that involving all staff in the performance of the clinic increases the feeling of belonging, and encourages a more loyal and committed attitude in all areas and at all levels.

We feel that our holistic approach to the provision of specialist dental care not only gives our patients the chance to receive the highest standard of treatment delivered by the most appropriate clinician, but also that we provide a range of options tailored to their individual requirements. It is hoped that the considerable success of our particular Blackhills business model will serve as an indicator to others of how effective the combination of the right people working together in the right environment with the right attitude to patient care can be.

MORE INFO

Blackhills Specialist Dental Clinic led by clinical director Paul Stone, is located in Aberuthven, near Perth. See more at: www.blackhillsclinic.com
Contact the team on 01764 664 446.





EXPEDITION AMAZON

THREE GLASGOW STUDENTS TRAVELLED HALFWAY ROUND THE WORLD TO WORK WITH THE CHILDREN OF PERU WHERE, MUCH LIKE THEIR UNIVERSITY TOWN, STANDARDS OF ORAL HEALTH ARE EXACERBATED BY SOCIOECONOMIC STATUS

NINA HAVERON, LAUREN WILSON AND AILSA WOODLEY

In the summer of 2014 we three dental students travelled to Peru to complete our BDS4 Elective Study, entitled "The Development and Delivery of an Oral Health Education Resource, in Spanish, for use in a Paediatric Population in Peru" – a rather wordy title but fairly self-explanatory. For two weeks we gave oral health lessons to more than 75 children ranging from two to sixteen years, an experience we all agree to have found fun, interesting, and at times hard, but overall extremely rewarding.

Why this project? Firstly, we wanted to visit a developing country to witness the difficulties faced without a national health service and with limited public health interventions. At the moment, oral health in Peru constitutes a serious public health problem; according to the Pan American Health Organisation the prevalence of dental caries in 2000 was 84%[1] and a DMFT index published in 2002 found a score of 3.7 for children aged 12[2].

Information about Peruvian oral health is scant in the extreme and our research found very little information about the existence of any public health interventions to improve the dental health of children in Peru.

The provision of dental services in Peru is private, with approximately one dentist per 9000 people. Dental attendance is low due to cost. Much like Glasgow, differences in standards of oral health are exacerbated by socioeconomic status and one of the main reasons for this is a lack of education. This was one particular area in which we felt we could help.

ABOVE: One Peruvian youngster enjoys learning all about the benefits of regular teeth brushing

We also each wished to work directly with children, hence the emphasis on the paediatric population. A previous assignment involving teaching oral health to primary seven pupils in Glasgow had given us a taste for oral health education, and therefore we decided to base our elective on this project. Teaching a lesson to this age group in Scotland was very useful and a good test run as ten and eleven year olds would be the mean age of our target audience out in Peru; and let's be honest, if we couldn't get the message across in English we were really going to struggle in Spanish.

On planning our trip to Peru we tried to find and contact as many volunteering agencies involving children as possible. With the internet not as readily available in Peru as it is in the UK, establishing initial contact was difficult. It was disappointing when agencies didn't reply, but after months of emailing we finally gained correspondence with the Elim orphanage in Cusco and the HOOP project in Flora Tristan, a shanty town on the outskirts of Arequipa, a coastal city in the southwest of Peru.

The first place we visited was Arequipa and an hour's bus journey out of the city took us to Flora Tristan, where the after-school club was based. It was a very poor area and the children attending the school were often dishevelled and dirty, wearing the same clothes every day. Arequipa is

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1. PAHO.Heath situation analysis and trends summary: Peru Oral health. Available from: http://www1.paho.org/English/DD/AIS/cp_604.htm
2. Malmö University Oral Health Database. Available from: http://www.mah.se/CAPP/Country-Oral-Health-Profiles/According-to-Alphabetical/CountryArea-P/

BELOW: Hillside towns like this are home to thousands of Peruvian children with very significant oral health issues

"OUR RESEARCH FOUND THERE WAS LITTLE INFORMATION ABOUT THE EXISTENCE OF ANY PUBLIC HEALTH INTERVENTIONS TO IMPROVE THE DENTAL HEALTH OF CHILDREN IN PERU"

LAUREN WILSON

FROM PREVIOUS PAGE>

2,500m above sea level and visiting here first allowed us some time to acclimatise to the decreased oxygen availability before climbing to our next destination of Cusco, at 3,500m.

Cusco, situated in the south-east of Peru, is known for being the historic capital of the Inca empire. With a population of roughly 430,000, it is the unofficial capital of Peru and a hub for tourists visiting the ancient Inca citadel of Machu Picchu. However, you only had to walk 10 minutes from the busy main square to see the extent of the poverty many of the citizens faced. The Elim orphanange was situated in these poorer suburbs and we stayed in the boys' house. The orphanage homed children who had lived on the streets or had come from very difficult family circumstances.

When developing the resource we looked at current oral health resources and guidance currently in use in Scotland; this included Childsmile, SDCEP guidelines and the SIGN 138 guideline. We were unsure of the level of knowledge regarding oral health within our target population so when creating our resource we kept the content to key messages in topics which included diet, tooth brushing and the role of the dentist. After this pilot resource was complete we translated it into Spanish.

ABOVE AND RIGHT: Enjoying the sights of Peru and taking a break from work with the children

We had been taking Spanish lessons for 18 months prior to our visit and were fortunate enough to have all of our written Spanish resources checked by a native speaker prior to embarkation.

We aimed to develop and tailor the pilot resource once in Peru as we would then have a better understanding of the limitations faced by the children, the general oral health attitudes of the population and the Peruvian people's culture and lifestyle. With the limited time we were able to spend over there we knew we needed to create something that could complement the system already present. We were eager not to become another group of "voluntourists" and wanted to leave something that would have a lasting benefit for the children of the country.

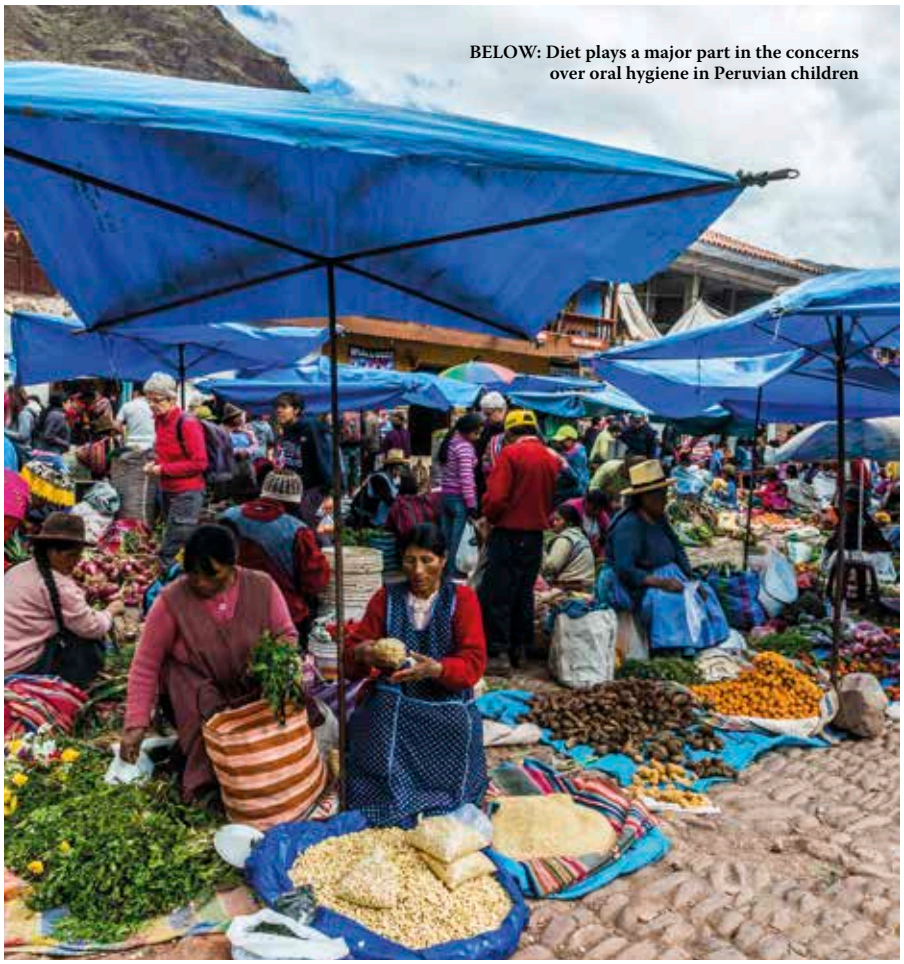
In both cities our target age range was large. The youngest child we saw was two years old and the eldest almost sixteen; alongside this we also seized an opportunity to speak to a large group of parents in one of the communities.

The wide age range and lack of information available at our initial design stage made us slightly nervous about delivering the resource and this was only increased by the issue of the Spanish language barrier. However, with the help of volunteers who worked with the agencies, we managed to successfully deliver our lessons.

For each age group, one of us would lead the lesson, one played a diet game and the other demonstration tooth brushing. Due to the children's circumstances we advised them to visit the dentist when in pain, as asking them to go for check-ups just felt ignorant and out-of-touch. After the lessons each child received a toothbrush and toothpaste and we invited them to stick the posters up in eating areas and at bathroom sinks. Overall, the children were receptive and appeared to enjoy the content, particularly playing with the set of big teeth and toothbrush that we took out with us. One thing the children really responded to was when we explained the "spit don't rinse" concept. To borrow an old cliché, it really did seem like a "lightbulb moment" for the children, not just for the older age group, but also for the 7-10 kids as well. To receive a response like that from such a simple message made us wish we had been able to visit more groups.

Carrying out this project in a team meant there were more ideas being generated during planning, more discussion on content and different opinions on teaching styles, ultimately giving us a better final resource and lesson.

Some aspects of our lessons were not



BELOW: Diet plays a major part in the concerns over oral hygiene in Peruvian children

"IN PERU WE WOULD HAVE A BETTER UNDERSTANDING OF THE LIMITATIONS FACED BY THE CHILDREN AND THE GENERAL ORAL HEALTH ATTITUDES OF THE POPULATION"

NINA HAVERON

so successful: for instance, a lesson we delivered to the mothers of the youngest children at the after-school club. They were very unenthusiastic and it was easy to see why: we were three young Western girls preaching when clearly we could not identify with the daily problems they faced. Many of them had several children, little money, variable electricity and water, were working full time and had more pressing problems than getting their children to brush their teeth. A lot of the women attended a skills development group and, on reflection, we probably would have had more success giving the teacher of the group advice and having them pass it on rather than struggling by ourselves.

It was interesting to see the differences between Scotland and Peru, especially with regards to diet. We carried out some research speaking to children, staff and parents to obtain a rough understanding of typical dietary patterns. While main meals are generally low in sugar, Peruvians love sugary pastries and sweets. By far their favourite soft drink is Inca Cola; an electric yellow fizzy juice with some extra sugar added in for taste.

This diet pattern is similar to Glasgow with the main sugar intake due to snacking on refined carbohydrate, confectionery or high-sugar beverages. Poor water sanitation means water must be pre-boiled prior

to consumption resulting in a bad taste and therefore it is often avoided. Bottled water costs an average of two Peruvian sols (40 pence) per 600ml bottle, almost equal in price to sweetened drinks.

It's not rocket science to see the problem here. Very few children will opt to buy water when their favourite sugary drink is only pennies more expensive. After this insight, we adapted our resource to include a list of safe snacks as the children frequently asked what foods were healthy for their teeth.

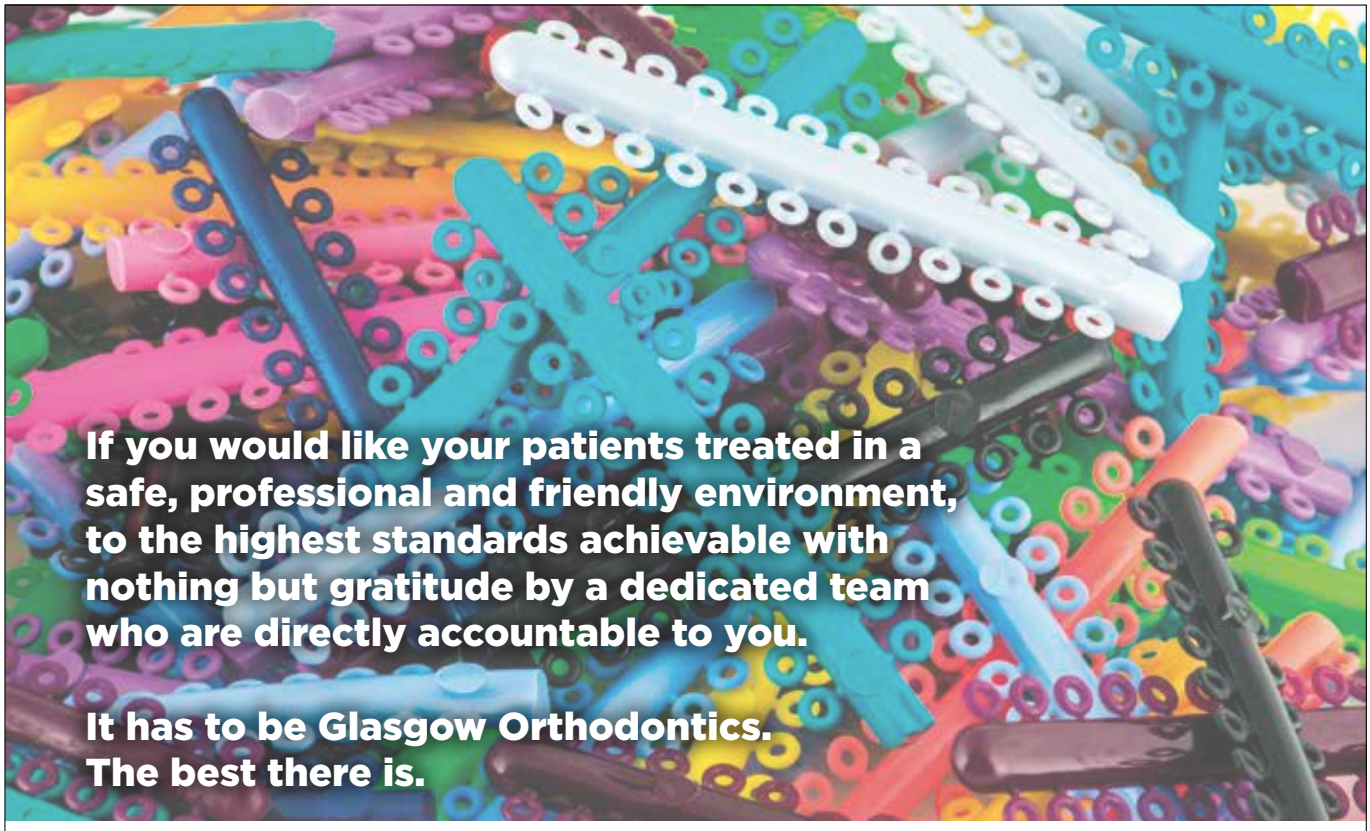
We loved every minute of our elective. However, it was challenging when we couldn't quite remember the Spanish word for something or actually a bit unnerving after getting lost travelling by bus to our first school – Peruvian public transport is not something for the faint-hearted. Buses seat 18 people, but we don't think we ever travelled on one with less than 40. Sitting on a stranger's knee or having your head pressed against their armpit while they clung onto the handles to stop themselves being thrown on to the seven children sharing the seat beside them was perfectly normal.

Aside from dentistry, this project allowed us to visit a country rich in history and culture. We learned a lot about the people of Peru, their dress code, behaviour and values and we managed to fit in a bit of sight-seeing along the way too; Machu Picchu being a highlight for all of us. One thing we won't miss, however, is the local delicacy of guinea pig (best avoided).

To anyone considering an elective similar to ours, we say DO IT! Prevention is a hugely important part of paediatric dentistry and it is important we strive to deliver these simple oral health messages to the children who need it most. Our experience was fantastic and gave us a lot of food for thought in how we will deliver our own preventive advice in practice. A truly memorable trip.

ABOUT THE AUTHORS

This article was written by University of Glasgow dental students Nina Haveron, Lauren Wilson and Ailsa Woodley following their Elective trip to South America in the summer of 2014.



AFFORDABLE AESTHETICS

GLASGOW LABORATORY INTRODUCES A NEW PRODUCT TO THE DENTAL MARKET IN SCOTLAND

In just a little over two years, Impulse Dental Laboratory has grown in both size and reputation and it has now introduced a brand new product to the Scottish market.

Owner Paul McFall has launched the Impulse Aesthetic Crown, a metal-free, all ceramic crown that is available for patients on an independent level.

He said: "For posterior restorations on the NHS the only choice is a full metal crown, so this new product is a great option for patients who want something a little more aesthetically pleasing, but that is still affordable."

This sentiment is backed up by Paul Devine, dentist at Brian Easton Dental Practice. He said: "I find the Impulse Aesthetic Crown to be an excellent option to offer to our NHS patients who are looking for a cosmetic crown for posterior teeth at a reasonable price."

And Gerard Shields, principal dentist at Bathgate Dental Practice, said: "This is an excellent entry-level private crown option for patients."

Paul opened Impulse Dental Laboratory in February 2013 and, in that time, the lab has outgrown its initial premises in Baillieston, moving into a former dental practice in Shettleston last year. The lab now has nine technicians and, from an initial customer base of 32 dentists, it now serves 174 clients from as far afield as Birmingham and Enniskillen in Northern Ireland.

And Paul explained that he is delighted with how it has turned out. He said: "We're getting work through word of mouth because dentists are recommending the lab's services to other dentists.

"We're at a level now where we've built a good reputation for being reliable and putting out good work. We've worked hard and we know there's still hard work ahead of us, but we'll embrace it and continue to do so to further improve our service."

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Modern Implant Dental Therapy

Thursday 14th May 2015

ADI Team Congress 2015, SECC Glasgow

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Alsh Suite 1

08:00 - 08:15 Welcome Coffee & Pastries

08:15 - 09:00 Bridging the Soft Tissue Interface
Mr Anthony Summerwill, UK

09:00 - 09:45 Socket Preservation Techniques
Dr Anne O'Donoghue, Ireland

10.00 - 10.45 The Treatment of Surgical Lesions
Dr Edward Pat Allen, USA

10.45 - 11.30 Implant Placement using Modern Implant Surfaces
Dr Nik V Pandya, UK

11.30 - 12.00 Q&A Session
All Speakers

The Corporate Forum entry is free to those attending the ADI Team Congress

BOOK ONLINE: www.adi.org.uk/congress2015

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JOIN BIOHORIZONS FOR THE LATEST IN IMPLANT THERAPY

BIOHORIZONS IS PROUD TO PRESENT A SERIES OF LECTURES REVIEWING MODERN IMPLANT DENTAL THERAPY AT THIS YEAR'S ADI TEAM CONGRESS, WHICH WILL TAKE PLACE IN GLASGOW BETWEEN 14 AND 16 MAY

CUTTING EDGE: The MinerOss X products, which use innovative materials, will feature at the ADI Team Congress

Recognising that education is key to successful implant dentistry, BioHorizons is committed to providing new and existing customers with the opportunity to attend CPD events tailored to different levels of need, which is why you'll find us at the ADI Team Congress.

Working towards that goal, on the first day Mr Anthony Summerwill will consider the interfacial relationship between implants, abutments and soft tissue, and how this can impact on the long-term maintenance of peri-implant health.

This will be followed by Dr Anne O'Donoghue discussing socket preservation techniques from patient selection through to post-operative care.

Next, Dr Edward P Allen will present guidelines for determining how to treat three types of cervical lesions: non-carious; carious; and previously restored lesions. A minimally invasive surgical technique for correction of gingival recession associated with cervical lesions will be shown.

Finally, Dr Nik Pandya will review and evaluate the benefits of modern implant surfaces, specifically looking at the impact that the surface type can have on the aesthetic zone.

EXPANDING BIOHORIZONS

Building on BioHorizons comprehensive product line is the new MinerOss X, an anorganic bovine bone mineral matrix that is physically and chemically comparable to the mineral structure of human bone. Being showcased at the ADI, the MinerOss X family of xenografts* can be used in a wide variety of grafting applications.

THE MINEROSS X FAMILY OF XENOGRAFTS INCLUDE:

- MinerOss X Particulate is available in either cancellous or cortical form. The complex trabecular architecture and natural consistency allow for ideal bone formation at the defect site
- MinerOss X Collagen is a combination of 95 per cent anorganic cancellous bovine bone and approximately 5 per cent bovine collagen. This block form allows for convenience during placement and an ideal solution for many applications
- MinerOss X Syringe is cancellous particulate pre-loaded into a delivery syringe to assist with optimal placement at the defect site.

TeethXpress, a biomechanically-stable, immediate load protocol for fully edentulous patients will also be on show. BioHorizons Tapered implants with Laser-Lok® technology provide superior primary stability for immediate load. The BioHorizons Multi-unit abutment system provides the tools to restore even compromised edentulous cases. With the greatest range of sizes, heights and angled options compared to any other large competitors, no system better equips you to plan for your patients' individual needs. The TeethXpress technique and technologies create a stable and predictable immediate load solution that will make your patients smile.

Providing just a snapshot here of what is available from BioHorizons, we invite you to visit the team on stand 33 where you can be sure of a warm welcome.

Alternatively, please visit our website at www.biohorizons.com to see the entire range of dental implant products and biologics. Whatever your clinical need, BioHorizons has the solution.

MinerOss X is manufactured by Collagen Matrix, Inc. Not all products are available in all countries.
SPMP15015GB Rev A Jan 2015
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MANAGEMENT OF TRAUMATIC INJURIES

TRAUMA

Dr Robert Philpott argues that a strict adherence to biological principles and a common sense approach is key when dealing with trauma patients

DR ROBERT PHILPOTT

Literature on the management of dental trauma in general practice suggests that difficulties may be encountered due to gaps in knowledge and a lack of training on the subject. Barriers to providing this care include lack of time, lack of confidence in diagnosis and inadequate remuneration (Hamilton et al 1997, Stewart and Mackie 2004, Jackson et al. 2005, Hu et al. 2006). Coupled with this is the fact that these patients may present relatively rarely in practice, adding to the stresses associated with management.

The keys to managing traumatic injuries involve correct technical management underpinned by a sound knowledge of the biological processes at play. This incorporates detailed history-taking, prompt emergency management and structured long-term follow-up to deal with the delayed complications often encountered.

How, what, when, where?

Initial interview of the patient must focus on any potential head injury, with emphasis on whether there has been a loss of consciousness. Often, many patients may have attended a local emergency department for immediate management prior to presentation at a dental practice.

One of the primary goals of immediate patient management is reassurance. History taking should begin with questioning of the patient in relation to how the injury occurred. The patient should be allowed to give their version of events with minimal interruption from the clinician. This component of the history may be especially important if there are any criminal or civil proceedings which may follow.

Interview in relation to the type of injury the patient has suffered may begin to shed light on the severity of the injury and the tissues involved. It is important to ask the patient what they feel has happened to their teeth i.e. whether the teeth are broken or not and whether there have been any alterations to the occlusion. History-taking should encourage the patient to use their own words to describe the injuries. Examination of previous photographs may shed light on the pre-operative situation. Interestingly, Dental Trauma UK, a new charity recently founded in the UK, has recommended that clinicians encourage the general public to join the "selfie" craze, taking a photograph of their smile, thereby providing invaluable information for the clinician managing a dental trauma.

The time elapsed since the injury may have an effect on pulpal and periodontal ligament survival and influence our decision-making in relation to the treatment we choose. Re-implantation of an avulsed tooth may not be possible if an extended time has passed since the injury due to clot formation and remodelling of the socket.

The site of the injury may influence our decision on whether the patient will need tetanus prophylaxis although, as aforementioned, this may often have been dealt with in a hospital setting. The site of the injury may also need to be searched for any missing tooth fragments, while cleaning of avulsed teeth contaminated with any gross debris will need to be completed before an attempt at re-implantation.

Immediate management

A traumatic injury to the dentoalveolar complex is an upsetting and worrying injury to any patient. It can also be a stressful occurrence for the dentist which, thankfully, may present relatively rarely in general practice.

Patients often present with multiple soft and hard tissue injuries and, in the first instance, it can be difficult to identify and diagnose the injuries. A calm approach is essential at this early stage, both to reassure the patient and to avoid missing any important detail during this initial examination (Fig 1).

The emergency management should commence with cleaning of the injured site. This can readily be accomplished

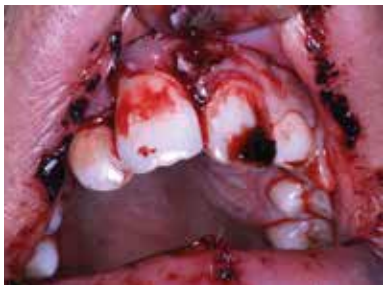

FIGURE 1
Multiple concomitant injuries to the dento-alveolar complex following a traumatic injury

INJURY	DESCRIPTION	PRESENTATION	TREATMENT
Enamel +/- dentine fracture	Fracture of enamel and/or dentine	Fractured tooth	Protect pulp and restore
Concussion	No movement of tooth	Tooth TTP	Monitor
Subluxation	Movement of tooth without displacement	Tooth TTP and possible bleeding from sulcus	Monitor
Lateral luxation	Tooth displaced	Incorrect position of tooth/occlusal discrepancy	Reposition, splint and review
Intrusion	Tooth forced into socket	Infra-occluded or "disappeared" tooth	Depends on severity/ stage of development
Extrusion	Tooth forced outwards from socket	Tooth appears longer than adjacent teeth	Reposition, splint and review
Avulsion	Tooth completely removed from socket	Tooth no longer in place/in storage medium/missing	If available, clean, re-implant and splint
Dentoalveolar fracture	Fracture of bony housing	Mobility of whole bony segment if severe	Splint and review

TABLE 1

A thorough understanding of the tissues at risk of injury is critical to facilitate correct diagnosis and management of these injuries

using some sterile gauze soaked in chlorhexidine. It is wise to avoid using compressed air and water from the "3 in 1" syringe in the first instance to avoid startling an already nervous patient and to avoid disruption of the injured soft tissues. Although rare, this may lead to introduction of air into the soft tissues leading to a surgical emphysema.

Initial assessment of the injured site should be done by visual inspection, noting any malposed and fractured teeth, with attention paid to any previous treatment which may have been carried out. This should be followed by careful digital palpation of the site, taking care to identify any step deformities or mobility of the alveolar bone. This may be indicative of luxated teeth or fracture of the alveolar bone. Priority should always be given to treatment to encourage bony union during healing as the consequences of poor healing can be catastrophic.

Imaging

Radiographs are an essential tool in the diagnosis of dental trauma and a decision on which types and angles must be taken at the initial assessment appointment. As a rule of thumb, periapical radiographs of the maxillary anterior teeth (3-3) should be taken following a moderate injury to the maxillary anterior teeth. A decision on whether to take radiographs of the corresponding mandibular teeth can be taken depending on the results of the clinical examination and the perceived severity of the injury. Location of tooth fragments within the soft tissues is best done using a combination of digital palpation along with reduced exposure of a large periapical film. More recently, cone beam CT has been used in the diagnosis of traumatic injuries, offering the advantage of three dimensional assessment of displaced and injured teeth (Patel et al. 2007). This can offer great benefit in the case of dentoalveolar fractures and luxated teeth, often difficult to identify on standard periapical radiographs.

Classification of injuries

Classification of dental trauma is often complicated by the concomitant injury of multiple tissues. A thorough understanding of the tissues at risk of injury is critical to facilitate correct diagnosis and management of these injuries. As aforementioned, priority should be given to the treatment of any bony injury in order to minimise the risk of more severe complications later. A proposed classification of traumatic injuries in increasing order of severity is shown in Table 1.

Repositioning and splinting

Adequate anaesthesia must always be achieved prior to any clinical intervention post trauma. This is essential to allow for adequate manipulation of injured tissues and to avoid adding to the patient's stress. Repositioning of luxated teeth should begin with an understanding of how the injury has occurred and how this may have altered the position of the root within the alveolar housing. Frequently, the apices of luxated teeth may be "locked" into the alveolar bone.

Re-positioning, therefore, requires a firm but controlled force on the alveolar bone in order to manipulate the tooth into position. A clicking sound is often heard when this is done correctly. Palpation of the overlying soft tissues afterwards to assess labial contour helps to confirm this.

It is imperative in the case of avulsed teeth that they are first gently cleaned under running water while holding the tooth by the clinical crown. This ensures removal of any gross debris prior to an attempt at re-implantation. Storage medium and extra-oral dry time are two critical prognostic factors in the outcome following avulsion injuries, with literature suggesting the risk of replacement resorption being much higher in those teeth with a dry time of greater

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than 60 minutes (Andreasen 1981, Andersson et al. 1989). Patients should also be advised to store avulsed teeth in either milk or saliva (possibly even intra-orally) as opposed to in water. Ideally, an attempt at re-implantation should be made immediately although this may prove difficult in terms of positioning and angulation for those not familiar with the situation. Other storage media (Khademi et al. 2008) have also been proposed. However, they may not be readily available at the time of injury (Figs 2 and 3).

A variety of splinting protocols have been proposed for the stabilisation of injured tissues (Table 2).

Basic biological principles should be adhered to when fabricating a chairside splint. Wire-composite splinting is most commonly used and adheres to these principles if placed correctly. Guidelines previously recommended utilisation of rigid and non-rigid splints for different injuries but this has now been replaced by a protocol of non-rigid splinting for all injuries, of varying duration. This usually takes the form of an 0.16 Ni-Ti orthodontic archwire, although newer products on the market may supersede this (Fig 4).

Care should be taken initially to pre-bend the wire where possible to adapt it well to the labial surfaces of the injured and supporting teeth. This avoids application of an orthodontic force to the region. Teeth should be spot etched at the mid-labial aspect and a small amount of bonding agent added with the tip of a probe. Over zealous application of bonding agent results in difficulties in the removal of excess composite at the splint debond appointment. This may have obvious implications for direct physical trauma and potential heat transfer to an already injured pulp.

Composite should be placed at the mid-labial aspect of the teeth, well clear of the gingival margin and should be polished to avoid any overhangs, which may act as a plaque trap and a source of irritation to the patient. Splinting of teeth by direct composite union should be avoided due to its rigid nature, difficulties in maintaining oral hygiene and in removal.

Review protocol

A robust review protocol is essential in the management of these cases. Various timings have been suggested and a common sense approach should prevail. The necessity for regular review is dependent on the severity of the initial injury and the likelihood of healing complications later. In general, review should be arranged one week, two weeks, four weeks, three months and six months following the date of the injury although slight variations have been proposed to this.

The key to review of traumatic injuries lies in establishment of baseline readings at the initial appointment and subsequent repetition of the examination and recording of results. This can be aided by the development of a custom trauma screen for in-office dental software or a simple stamp for written records. This ensures that nothing is missed at review.

Care must be taken in the interpretation of the results of sensibility tests in the aftermath of these injuries. Literature has suggested that teeth presenting giving positive responses at the initial appointment have a better pulpal prognosis but a period of monitoring is essential before committing any tooth to root canal treatment. The only exception to this appears to be avulsed permanent teeth, in which treatment can be initiated immediately.

A common sense approach should be adopted towards repeat radiographic examination. Over-exposure of the patient by taking excessive numbers of radiographs is ill-advised both in terms of the ALARA (as low as reasonably achievable) principle and also in terms of diagnostic yield.

Splint removal based on the timings outlined above is best carried out by removing the composite from the injured tooth/teeth first. This allows for their assessment in terms of mobility prior to deciding on whether to debond the whole splint or not. This saves time and avoids subsequent manipulation of injured teeth (Fig 5).

Definitive endodontic treatment

A decision on the necessity and timing of endodontic treatment on traumatised teeth must be taken following comparison between the clinical and radiographic findings at the initial appointment and subsequent review.

Various literature proposes the strategy of waiting for a period of three months, during which pulp sensibility tests give negative responses prior to initiating root canal treatment on injured teeth. The obvious exception to this is in the case of an avulsed tooth with a closed apex. Root canal treatment is advised immediately in this situation although practically, clinicians may often delay this by one week. This allows the focus of the initial appointment to be on patient reassurance and emergency management. Additionally, healing of soft tissue injuries will have progressed well during that initial period.

It is well documented that immature teeth may give erroneous results due to the lack of development of the pulpal neural network

Caution must be exercised in interpreting the results of pulp sensibility tests following a traumatic injury. The injured pulp may be in a state of 'shock' and may not respond positively to the stimulus applied. Equally, it is well documented that immature teeth may give erroneous results due to the lack of development of the pulpal neural network. A prolonged delay leading to necrosis of the pulp, however, may affect the outcome of root canal treatment and put the tooth at risk of catastrophic resorption.

Where possible, endodontic treatment should be commenced with the splint in place as this confers extra stability on the injured teeth during the procedure. This is usually limited to teeth which have suffered an avulsion injury due to the recommended splinting times (Table 2) and the timing of definitive treatment. It may also lead to difficulties in rubber dam placement, with the split dam technique in the isolation of multiple teeth being necessary.

Timely management of complicated enamel dentine fractures is essential to optimise the outcome. Depending on the duration of pulpal exposure, the goal must be maintenance of pulpal vitality in these cases. Any direct exposures should be capped using a slurry of non-setting calcium hydroxide and restored with a glass ionomer cement base followed by a composite restoration. While mineral trioxide aggregate (MTA) remains the gold standard material for pulp capping of posterior teeth, caution must be exercised in the use of both grey and white MTA in these cases as subsequent discolouration of the tooth may provide an aesthetic challenge in the future. Biodentine may provide a suitable alternative in non-load-bearing areas.

Endodontic access to injured teeth is often straightforward due to their anterior location and lack of complex anatomy. Care must be taken to design and position the access cavity correctly, ensuring that the pulp horns are

FIGURE 2
Photograph showing extent of displacement of coronal fragment following horizontal root fracture

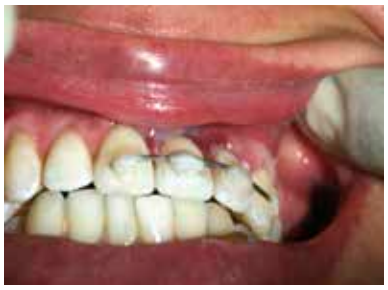

FIGURE 3
Same patient from Fig 2 following re-positioning and splinting

INJURY	TIME (WEEKS)	TYPE
Subluxation	2	Flexible
Lateral luxation	4	Flexible
Intrusion	4	Flexible
Extrusion	2	Flexible
Avulsion	2	Flexible
Root #	4 weeks - 4 months	Flexible
Dentoalveolar #	4	Flexible

TABLE 2

FIGURE 4
Titanium trauma splinting wire. Note spaces in wire which may facilitate placement of composite. (Image courtesy of Dr Chris Millen)

FIGURE 5
Patient from Fig 1 at one week review appointment. Note vast improvement in condition of soft tissues

included to allow for removal of necrotic debris and access for irrigant. This prevents subsequent discolouration of these teeth post-treatment. Access may prove much more difficult in the case of traumatised incisors which have undergone pulp canal obliteration (PCO). Several groups have reported that 4-24 per cent of teeth undergo these changes in response to traumatic injuries, while McCabe and Dummer (2012) highlighted a useful series of steps to follow clinically in the management of this clinical scenario.

Instrumentation and irrigation of the root canal system should be carried out adhering to the biological principles of endodontic treatment. Difficulty may be encountered in determination of working length (WL) in teeth with open apices or in those with crowns and should be confirmed radiographically where doubt exists over the accuracy of the electronic apex locator (EAL) reading. Teeth suffering from horizontal root fractures should only be instrumented to the level of the fracture line and not beyond (Fig 6). The apical fragment of these teeth is almost always vital and unnecessarily instrumenting and obturating it poses difficulties for the clinician. Care must also be taken in the placement of the irrigation needle in close proximity to an open apex or root fractured tooth to avoid extrusion of sodium hypochlorite, the gold standard irrigant in such cases where dissolution of pulpal tissue is essential.

Various inter-appointment medicaments have been proposed for traumatised teeth with Ledermix showing promising results in the case of avulsed teeth (Bryson et al. 2002). This may not now be readily available in the UK and Odontopaste is proving to be a reliable alternative. In the case of other traumatic injuries, non-setting calcium hydroxide is advised.

Prior to the advent of MTA for the apexification (physical apical barrier formation) of immature teeth, long term

Care must also be taken in the placement of the irrigation needle in close proximity to an open apex or root fractured tooth to avoid extrusion of sodium hypochlorite

dressing with calcium hydroxide was common. This proved to be a time consuming and unreliable method of barrier formation and potentially pre-disposed teeth to cervical fracture (Andreasen et al. 2002). MTA placement in these cases is best achieved using an apical placement system such as a Dovgan carrier or the Micro Apical Placement System by Dentsply.

Such devices simplify the technique and ensure placement of an adequate thickness of the material, while avoiding extrusion (Fig 6). The remaining canal is often best obturated using a thermoplasticised technique thereby minimising voids in the root filling.

More recently, case reports have emerged of revascularisation of teeth with open apices using combinations of antibiotics (Banchs and Trope 2004), combinations of irrigants (Shin et al. 2009) or simply sodium hypochlorite and EDTA, along with MTA. Results of these are promising, although doubts remain regarding the structure and origin of such regenerated tissue as it appears to be more similar to bone than pulpal tissue.

Discolouration of traumatised teeth may also pose problems in management. As aforementioned, care must be exercised to remove remnants of pulpal tissue from the pulp horns in access cavity design and the root filling material should always be compacted to a level 1mm below the

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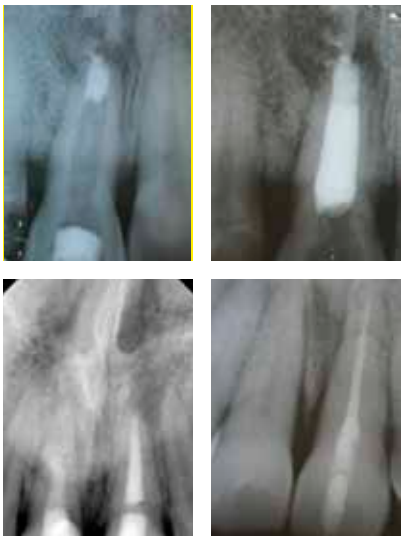

FIGURE 6
Series of radiographs showing definitive endodontic treatment of tooth 11 in patient following traumatic injury. Tooth 11 obturated using MTA plug apically and subsequent Obtura backfill.
Final image shows tooth with horizontal root fracture filled through fracture line

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cervical level of the tooth. This avoids subsequent discolouration from residues of root canal sealer and allows for correct placement of composite. The current protocol for non-vital bleaching of root-filled teeth dictates that bleaching agents containing a maximum of 6 per cent hydrogen peroxide are allowed. The "walking bleach" technique often results in acceptable aesthetic results for patients and clinicians alike.

Complications and prognosis

The biological complications following a traumatic injury to the dento-alveolar complex most frequently involve the pulp and the periodontal ligament (PDL). These healing complications are primarily a result of the extent of the injury (often the physical displacement of the tooth/teeth) and the efficiency with which we manage the injury.

Pulpal necrosis

While the severity of the initial injury is a prognostic factor for pulpal survival following trauma, the stage of development of the tooth is also important. Intuitively, we would assume that teeth with immature apices have a greater repair capability and this is borne out in the literature. Reports on pulpal revascularisation appeared in the literature as early as 1978 (Skoglund et al. 1978) and more recently, various protocols have been proposed in order to potentially regenerate injured and even partially necrotic pulps.

Literature suggests that the incidence of pulpal necrosis in permanent incisors is high in teeth suffering severe lateral luxation, intrusive and obviously avulsion injuries. In the case of horizontal root fractures, the degree of separation between the coronal and apical fragments often dictates whether the coronal pulp survives. In the case of an avulsed tooth, necrosis is almost certainly inevitable and endodontic treatment should be initiated within 10 days to limit the potential for associated complications.

Resorption

Dental resorption involves the removal of mineralised dental tissues and, according to Fuss et al. (2003), involves two distinct phases, injury and stimulation. In dental trauma cases, there are a number of categories of resorption which concern us and these are specifically related to certain injury types. In essence, resorption involves the loss of hard tissue while the unmineralised predentine and precementum remain protected. This protection of the predentine layer has been attributed to an unknown "protection factor" (Wedenberg 1987). While a detailed description of resorption is beyond the remit of this article, an outline of the types is given below.

Internal inflammatory resorption (IIR) may arise following a traumatic injury in the presence of a partially necrotic pulp. Bacterial contamination in the root canal system may act to stimulate an inflammatory response in the remaining pulpal tissues, with the subsequent loss of dental hard tissues. This presents as a ballooning radiolucency of the anatomy from the internal aspect of the root canal.

Infection may also act as a stimulus for external inflammatory resorption (EIR), with the dentinal tubules acting as a pathway for exit of bacteria and their associated by-products to the periodontium. These lesions present as radiolucencies at the lateral aspects of the root or in the apical region (Fig 7). Radiographically, the radiolucency is often superimposed over the root canal, with the lines of the root canal anatomy visible.

As the aetiology suggests, our management of these

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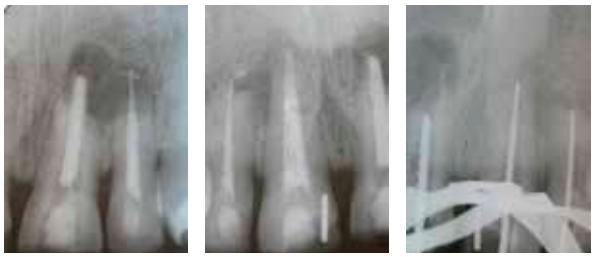

FIGURE 7
Series of radiographs showing suboptimal root fillings in traumatised maxillary anterior teeth. Note signs of replacement and external inflammatory resorption

Often, our dilemma as clinicians is between allowing an injured pulp every chance to exhibit signs of recovery while not delaying our treatment for too long

cases should focus on the removal of the infective stimulus which will halt the resorptive process. It is critical that we do not misdiagnose such cases or delay commencement of root canal treatment in traumatised teeth for too long, as the effects of the process can lead to devastating loss of hard tissues.

Often, our dilemma as clinicians is between allowing an injured pulp every chance to exhibit signs of recovery, while not delaying our treatment for too long. Importantly, not all types of resorption are as damaging and this often depends on the extent of the initial injury. In some trauma cases, we may see subtle signs of an EIR process which seems to self limit and cease over time.

Replacement resorption arises due to damage to the external surface of the root and is common after avulsion injuries, especially those teeth with a long extra-alveolar dry time or those that are mishandled (both in terms of manual handling and storage medium). This process essentially involves loss of dental hard tissue and subsequent replacement with bone. With injured teeth losing their aforementioned protective layer, bone resorbing osteoclasts begin this process of replacement resorption. Unfortunately, our knowledge of this disease process is limited and it may continue gradually until an entire root has been resorbed.

Various figures have been proposed to define the extent of replacement resorption needed to cause ankylosis of an injured tooth, with 20 per cent being suggested. Such teeth will, of course, lose their physiological mobility and have a high or metallic percussive tone. It is best to continue to monitor these cases and inform the patient of the likely complications which may arise in the future.

Conclusion

Management of injuries to the dentoalveolar complex involves strict adherence to biological principles and a common sense approach to the technical aspects of the treatment. Our approach at all times should be targeted at facilitating efficient healing of the tissues and allowing adequate time for this to occur. A regular and structured review protocol should be implemented with strict attention being paid to the possible healing complications, their appearance and the effect on prognosis.

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Dr Robert Philpott, BDS MFDS MClinDent MRD (RCSEd), qualified from Cork Dental School in 2003 and completed his endodontic training at the Eastman in London in 2009. He has worked as a specialist in endodontics in Ireland, London and Australia. He currently divides his time working as a consultant in endodontics at Edinburgh Dental Institute and in private practice at Edinburgh Dental Specialists.

FURTHER READING
Readers are directed to the following websites:
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www.dentaltrauma.co.uk

VERIFIABLE CPD QUESTIONS

AIMS & OBS:
- To aid the clinician in developing strategies for the management of acute traumatic injuries to the adult dentition.
- To highlight the importance of both efficient clinical management and regular follow up to optimise the outcomes in these cases.
- To assist clinicians in the identification and management of endodontic complications in traumatised teeth.

LEARNING OUTCOMES:
- Develop a structured protocol for the examination and review of trauma cases in general practice.
- Develop a knowledge of when and how best to intervene in these cases.
- Develop a sound biological knowledge of the healing processes involved, thereby ensuring that interventions are aimed at guaranteeing the best clinical outcome.

EXAMPLE QUESTION
What is the best way to clean an injured site prior to examination?

A. Air and water from the '3 in 1'
B. Local anaesthetic
C. Saline from a hypodermic syringe
D. Gentle cleaning with gauze soaked in chlorhexidine

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A PLACE FOR EVERYTHING

DENTAL MATERIALS

The correct use of dental materials is essential to successful outcomes for the patient. Here, Steve Bonsor begins a series of articles on dental materials, beginning with an examination of pre-placement factors

STEVE BONSOR

Dental material manufacturing companies go to great lengths and spend large amounts of money developing dental materials which, if used correctly, will yield predictable clinical results. Unfortunately, there are many factors outwith the control of the manufacturer which may subsequently contribute to failure of the material, thereby decreasing its longevity.

This article, the first of two on the use and abuse of dental materials, explores the potential problems which can arise even before the dental material has been placed in the mouth and offers practical advice on how these factors may be circumvented to optimise clinical success.

Cause of failure

In 1990, Mjör et al. published a paper examining the cause of failure when working with dental materials clinically. He found that 88 per cent of all failures were technique related, with the balance being material failures. Operator (or more correctly, dental team) variability is one of the commonest causes of failures.

During the manufacturing process, the manufacturer ensures that each product is supplied in perfect condition. However, when the product arrives in the clinic, there is much potential for the material to be compromised by incorrect handling.

Importance of following instructions

Long before the material is manipulated at the chairside, there are various factors which could compromise its clinical success. Very often, the first thing that happens when a new product arrives in the clinic is that the Directions For Use (DFU) supplied with each product is often discarded (Fig 1).

In dentistry, and not dissimilar to the assembly of flat pack furniture, there is a popular misconception that the DFU should only be referred to when there is a problem which the operator cannot solve. It is critically important that the DFU is read carefully prior to use and followed fastidiously.

Dental materials do evolve with time and the manufacturer may make slight modifications to products. Therefore, the DFU will consequently change. The dental team should be cognisant of this and adapt accordingly, otherwise the material may be used inappropriately, resulting in decreased clinical performance.

The member of staff responsible for ordering and stock control could be delegated to check every new pack of material for changes in the DFU upon arrival in the clinic and disseminate these to the rest of the team if necessary. Many clinics collate the DFUs in a materials file for easy reference (Fig 2). Only one set of instructions per product need be kept and this file can be kept centrally where all staff can readily access. The file is also useful for COSHH (Control of Substances Hazardous to Health) purposes.

Effect of temperature and humidity on materials

It is important that the stock room environment is carefully controlled so that materials are stored in optimum conditions and do not degrade prematurely. Unfortunately, this is very often overlooked. It is desirable for the material store to have an ambient temperature and humidity. This may be monitored easily by purchasing an inexpensive gauge from a hardware store (Fig 3).

Temperature has a major influence on materials during storage with extremes having detrimental effects. In a hot environment, materials may prematurely age even before they reach their 'use by' date. Furthermore, increased temperature accelerates the setting reaction of the material leading to premature set. As the temperature tends to be higher in the dental surgery itself, it is therefore sensible to keep a minimum amount of material in this room.

At the other extreme, too cold conditions decrease

setting time and increase working time. The viscosity of some materials (such as some elastomeric impression materials) may also increase at lower temperature, making them more difficult to mix. Many impression materials are now mixed in a machine and, if the product is not at the correct temperature, its increased viscosity may place undue stresses on the pistons of the machine, potentially inflicting damage.

When mixing cements, if the temperature of the glass slab is reduced to below the dew point (that is the temperature that air must be cooled for water vapour to condense into liquid) then beads of moisture will form on the surface of the slab (Fig 4). This water will then become incorporated into the cement mix, so reducing the powder to liquid ratio and producing a weakened cement.

However, a lower temperature may be beneficial as some materials such as silane coupling agents and whitening agents should be kept in the refrigerator to prolong their shelf life.

Humidity also has an effect on setting time with increased humidity causing premature set. Furthermore, moisture inclusion into the material may be detrimental and is most significant during the mixing phase. An air conditioning unit may be installed in the surgery to maintain a constant temperature and humidity. Rubber dam is an invaluable tool to provide an environment with a lower humidity compared to exhaled air. This is most critical when a bonding procedure is being carried out using hydrophobic materials such as resin composite (Fig 5).

Importance of product packaging

To ensure that each product arrives in an optimal condition, its packaging is carefully designed and presented. The packaging may serve to protect against light and prevents contamination by moisture in the case of photolytic and hydrophobic materials respectively (Fig 6).

For example, as water is required to complete their setting reaction, any uptake of moisture will cause compomers to set prematurely. It is therefore strongly advised that materials are left in their original packaging until ready for use. The manufacturer's instructions should also be followed with respect to storage, e.g. keep in the refrigerator, dark etc.

Each dental material has an expiry date and this should be checked prior to use. If this date has passed then the material should be discarded as the catalyst may have degraded and undesirably retarding the set of the product.

Factors affecting mixing

Powders should always be shaken prior to use as settling and compaction occurs over time, so more powder will be dispensed, increasing the powder to liquid ratio. The constituents of the powder may also separate during storage and shaking the bottle will mix the contents thoroughly. Similarly, bottles of liquid should be shaken to ensure a homogeneous solution.

Mixing by hand involves a mixing slab or pad made of glass, silicone or paper and the correct spatula which is compatible with the material being mixed. They must then be used together in the correct manner. The choice of mixing pad will depend on the material being mixed. It is recommended that zinc phosphate is mixed on a chilled glass slab to dissipate the heat produced during its exothermic setting reaction as well as increasing its working time. There are advantages and disadvantages to the other pads.

A spatula appropriate for the material being mixed should be selected. For example, a metal spatula should not be used to mix glass ionomer cement as the abrasive glass may abrade

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FIGURE 1
The Directions For Use booklet supplied with each product ***should not*** be discarded but retained for reference by the dental team

FIGURE 2
A ring binder file containing the DFUs of all the materials used in the clinic inserted into poly-pockets

FIGURE 3
Metering device to monitor stock room temperature and humidity

FIGURE 4
Drops of water condensing on a chilled glass slab. Incorporation of this water into the powder/liquid mix will affect the final properties of the cement

FIGURE 5
Rubber dam isolation to control the moisture, both in vapour and liquid forms, during a bonding procedure

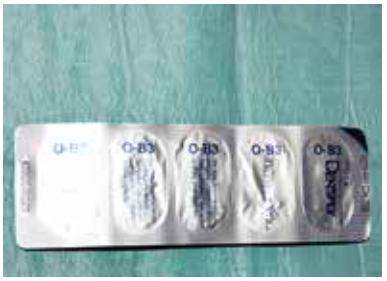

FIGURE 6
An example of a compomer material (Dyract Extra, Dentsply) presented in foil blister packs to prevent moisture from the air contaminating the material, and excluding light

FIGURE 7
An agate spatula which should be used to hand mix glass ionomer cements

FIGURE 8
An example of a capsule containing a glass ionomer cement (ChemFil Supreme, Dentsply)

FIGURE 9
The contents of a capsule:
1. Plastic clip
2. Pillow
3. Powder
4. Access hole
5. Outer casing
6. Plunger

FIGURE 10
Compules containing a resin-based composite material (Miris 2, Coltene Whaledent)

FIGURE 11
A cartridge mixing system with its spiral delivery tube prior to attachment (Protemp 4, 3M ESPE)

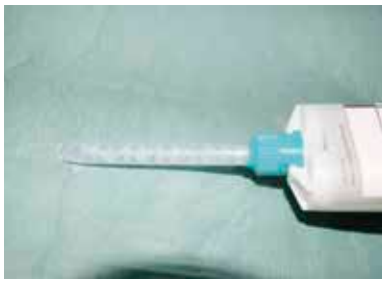

FIGURE 12
Cartridge delivery system containing a bite registration material with mixing tip in situ to prevent cross-contamination between the two tubes leading to premature set (Memosil 2, Heraeus Kulzer)

the metal of the instrument during mixing and incorporating it into the mixed material, instead an agate spatula should be used (Fig 7).

Finally, the material should be mixed as per the manufacturer's instructions. Some resin modified glass ionomer cements presented in powder and liquid form rely on microcapsular technology. This is similar to the 'scratch and sniff' panels used in lifestyle magazines to demonstrate perfumes and aftershave scents. During mixing, the shell of the microcapsule must be broken down to allow the active ingredients to be released from the microcapsule to react with the liquid and this will only occur with proper spatulation.

On occasion, when the clinic is running low of a powder, there may be a temptation to use another similar product to compensate, for example using zinc oxide powders interchangeably. This is a very dangerous strategy as often the chemicals contained in powders vary and, therefore, the material at best will not function as intended and at worse may not set. It is, therefore, good advice never to mix dissimilar or unrelated materials.

Encapsulated cements and mechanical mixing

The presentation of the product has a significant effect on the way the material may be mistreated. While hand mixed materials affords the operator more control to vary proportions, materials that are provided as components which the user must mix are most at risk as the potential for error is very high.

Furthermore, it can be difficult to dispense components in the correct proportion of each and difficult to mix a much smaller volume of one with a large volume of the second and ensure even distribution of the two components. To overcome some of the problems with hand mixed materials, manufacturers offer some powder and liquid products in the form of capsules (Fig 8).

These containers hold the active ingredients in separate compartments until activation (Fig 9). The capsule then becomes the mixing chamber and delivery vehicle. As with hand mixed powders, it is important that the capsule is shaken prior to use to ensure that all of the constituents of the powder are thoroughly mixed.

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Pressure must also be applied to the capsule for two seconds so that all of the liquid can be expressed from the pillow to yield the correct powder to liquid ratio. While the desired mix may be more consistently produced, there are some limitations with capsules. It is difficult for manufacturers to provide a precise dose of powder and metering of small volumes of liquid to fill the pillow produces some variation.

Additionally, a small nozzle, which may be the most appropriate size for precise delivery into the cavity, may not be able to physically extrude (more viscous) material with a higher powder to liquid ratio.

The dental team should be aware that different mechanical mixing machines may exhibit different types of movement, such as a figure of eight oscillation or a rotatory movement. The amount of energy imparted to the material contained within the capsule differs due to the throw of the mixing arm and the speed of oscillation. The machine should be set to the correct speed and movement applicable to the product being mixed.

The correct mixing time should also be carefully adhered to. For example, too short a mixing time will realise an incoherent mass with the powder and liquid inadequately mixed. Too long a mixing time will produce a reduced

Although mechanical mixing may eliminate many potential errors, it is not a panacea and not without shortcomings. For this reason, compules have evolved

working time and accelerated set. There may also be a reduction in the mechanical properties of the material in some cases. It sounds obvious but the correct time will produce the correct mix and this information may be gleaned from the DFU.

Light-cured product evolution

Although mechanical mixing may eliminate many potential errors, it is not a panacea and not without shortcomings. For this reason, compules (also known as Tips or Cavifils depending on the manufacturer) have evolved. These are small cylindrical containers with a delivery tip and plunger and contain all the active ingredients already mixed together by the manufacturer into an injectable paste (Fig 10).

This is advantageous for many reasons. Firstly, the proportioning of the ingredients and the mixing of the materials are optimised. Secondly, the risk of incorrect mixing is reduced as the components are already blended together, and, thirdly, the product should be (almost) free of air voids. These materials require an external energy source (such as visible light) to initiate the setting reaction.

Cartridges

The other modern method for the mixing and delivery of (impression and bite registration) products are paste-paste systems supplied in cartridges. A spiral tube with a varying number of helical turns (the number depending on the viscosity of the material) which both mixes and delivers the paste is attached to the cartridge containing the base and catalyst (Fig 11).

The material may be conveniently extruded at the site of use. Partly used cartridges should be stored with the previous mixing tip in situ (Fig 12). The original cap should be discarded after the product has been opened and never replaced, as base and catalyst retained at the orifices of the tubes may come into contact, so setting and occluding the exit ports. The set material will also form a seal preventing contamination from the environment.

Some impression materials are incompatible with certain mixing machines. This is a clever marketing ploy employed by some manufacturers to ensure that only their own products can be used in the machine to protect their commercial interests. Without stating the obvious, the dental team should ensure that any new product is compatible with the machine in the clinic.

Conclusions

As has been illustrated in this article, there are many pitfalls into which the dental team may fall when handling dental materials, even before they have been placed intra-orally. The most significant is operator variability which accounts for the commonest causes of failures.

This is despite the efforts of dental manufacturers who have attempted to produce materials which are as foolproof as possible. It is therefore imperative that the dental team reads and follows the DFU to ensure optimum performance and treatment outcome.

THE AUTHOR

Mr Steve Bonsor graduated from the University of Edinburgh in 1992 and in 2008 gained a MSc in Postgraduate Dental Studies from the University of Bristol. From 1997 until 2006 Steve was a part-time clinical teacher at Dundee Dental Hospital and School and honorary clinical teacher at the University of Dundee in the sections of operative dentistry, fixed prosthodontics, endodontology and integrated oral care.

He currently holds appointments at the University of Edinburgh, as an online tutor on the MSc in Primary Dental Care programme and at the University of Aberdeen as honorary clinical senior lecturer leading the applied dental materials teaching at Aberdeen Dental School.

As well as lecturing throughout the UK, Steve is actively involved in research, having published original research articles in peer-reviewed journals. His main research areas are photo-activated disinfection and the clinical performance of dental materials.

VERIFIABLE CPD QUESTIONS

AIMS & OBS:

- To examine the factors which can contribute to failure of a dental material before it has been placed in the mouth
- To discuss the importance of these factors with respect to success and longevity of the clinical procedure
- To give guidance on how these factors may be avoided or mitigated.

LEARNING OUTCOMES:

After reading this article, the reader should:

- Understand the factors out with the control of the dental material manufacturer which can affect the clinical performance of a dental material
- Have some background knowledge of the role of the dental material manufacturer
- Be able to effect practical procedures within their clinic or practice so that materials are stored and handled correctly prior to clinical placement.

EXAMPLE QUESTION

The most common cause for dental material failure is:

A. the inability of the dental team to read the 'directions for use' document

B. cost-cutting by the dental material manufacturer

C. dental team variability

D. clinical use.

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PIXEL PERFECT

RADIOGRAPHY

This article, published in two parts, explores the issues that need to be considered in producing high-quality digital images in dental practice. This first part looks at the clinical aspects while the second part will deal with the technology, both hardware and software, considerations

BARBARA LAMB

For many years dental practices have been working with X-ray film and the associated processing chemicals. Quality Assurance was well documented and was taught to undergraduate dental students and Dental Care Professionals (DCPs) in training. Ongoing Continuing Professional Development (CPD) of the dental team clarified how to deal with processing problems and so, over many years, the quality assurance of film images has improved with education.

Digital imaging, with technology advancing in dental practices, has become more and more popular and a growing number of practices now work with digital systems. Quality Assurance in relation to monitors, to view images, and how to recognise and correct errors in the digital image production should now be part of a practice's Quality Assurance programme. A Quality Assurance programme aims to produce consistently high quality images while keeping doses as low as reasonably practicable (ALARP). Practice Quality Assurance should be documented and audited.

Many dental practices have made the move to digital imaging but not all dentists are happy with the resulting images. The two parts of this article seek to assist understanding of the issues concerned. In the first part, by looking at some of the problems dental practices experience in recognising the problems with the resulting image and at possible ways to rectify them and, in the second part, by looking at the role computer systems can have in relation to the optimisation of digital images

There are two types of digital image receptor both of which capture a two dimensional image of the three dimensional patient. These are computed radiography (CR) photostimulable phosphor plates (PSPs) and direct digital radiography (DR) solid-state detectors (SSDs). There are approximately 256 shades of grey pixels which together make up the finished digital image. The sensors are very sensitive to X-rays and so the exposure to the patient can sometimes be dramatically reduced in relation to that which was used with conventional radiographic emulsion film.

Photostimulable phosphor plates (PSPs)

Under a protection layer is a photosensitive phosphor plate. This layer absorbs and stores the X-ray energy. After exposure, the plate is placed in a processor where it is scanned and the energy is released as light. The light is detected by a photomultiplier and the image is divided into pixels. A photomultiplier gives them a numerical value in relation to the intensity of the light released and the digital information is stored in the computer. The image can then be manipulated and displayed. PSPs are comparable in size to a conventional X-ray film and are compatible with most film holders. They are patient friendly and are suitable for use on most individuals including children and elderly patients. The more radiation that hits the sensor the darker the image will be. The capturing of the image is not instant but it takes only a matter of seconds rather than the few minutes it takes to process an emulsion film. After the plate has been scanned, the latent (invisible) image is then cleared by being exposed to light, either in the scanner or, less often nowadays, manually on a light box.

QUALITY ASSURANCE FOR PSPS

1. Surface marking

The phosphor layer is delicate and very easily marked by any form of rough handling. All staff that handle PSPs should be aware that they must not bend or scratch them, since even normal handling can damage the surface. This marking can degrade the image significantly and is irreversible for any future image production.

If the scanning system does not have an integral white

light clearer then the plates should be placed on an X-ray viewing box to erase the latent image. Problems can occur when the plate is lifted off after clearing. If the plate is slid across the surface of the box, the plate can be scratched (Fig 1). To minimise the possibility of this occurring, the box can be covered with cling film or see through bubble wrap allowing the plate to be lifted off rather than slid across the surface.

Custom-made mats are available that resemble a rubber bubble wrap on which the plate can be placed prior to and after scanning allowing the plate to be lifted off any work surface without scratching.

To ensure that PSPs are not marked beyond what is acceptable for image reading, the serial number should be taken and regular checks should be done to monitor for marks. To do this, the plate should be placed on a surface in its protective packet. No step wedge should be used. Next, the spacer cone should be lined up with the plate at a distance of 20 cm (the usual focal skin distance used in paralleling technique). The exposure given is very small (tiny flash exposure) and, when scanned, any marks will be visible. Each surgery should be responsible for its own plates. The time frame between these checks will vary in relation to the number of images captured and the quality of sensor handling by the staff.

2. Fogging limitation

As the PSPs are very sensitive to radiation, even background radiation can base fog them. To limit this, the plate should be cleared every day by placing on a light box for a few minutes before use. If this is done in the morning the plate should be fine until the end of the working day. Once again, to avoid marking, cling film can be stretched over the viewing box or see through bubble wrap placed on the box before placing the sensors, blue side down, on the surface to clear. Alternatively, if the scanner has an integral light clearer, the sensors can be cleared first thing every morning in the scanner.

3. Sensor positioning

Problems can occur in relation to the image receptor not being firmly held by the bite blocks in paralleling technique holders, if the same bite blocks are used with the phosphor plates that were being used with X-ray film. An X-ray film packet is much thicker than a phosphor plate. Whereas an X-ray film has black paper around it, lead foil behind it and a thick waterproof cover, the phosphor plate is usually the only item in the waterproof packet and is consequently much thinner. The difference in thickness of the sensor in the bite block compared to a film packet makes accurate positioning in the mouth very difficult, as the plate tends to slip off the holder. To avoid this happening, thicken the phosphor cover with a white cardboard bitewing tab (Fig 2). This tab also doubles as a "target" when checking the position of the sensor in the mouth before aligning with the spacer cone (Fig 3). The sensor now stays securely in the holder. This cardboard tab also protects the plate at the point where it is placed in the bite block and where it can easily be damaged.

4. Endodontic X-ray holders

Due to the lack of back support on the endodontic holder, many image receptors bend in the roof of the mouth and the apex of the root is missed or elongated. Also, the image receptor also often moves in the holder making accurate imaging difficult. Use two bitewing tabs to stiffen the waterproof packet and ensure that the image receptor is held securely during positioning (*Figure 4*).

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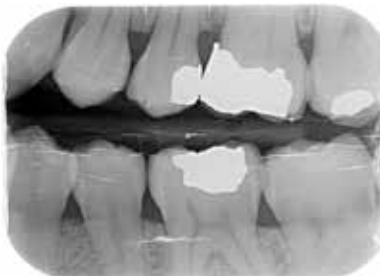

FIGURE 1
A bitewing image captured on a badly damaged photostimulable phosphor plate

FIGURE 2
Cardboard bitewing tabs

FIGURE 3
Bitewing tab being used to thicken the PSP to prevent the sensor moving and provide a "target"

FIGURE 4
Bitewing tabs being used to support the upper part of the endodontic PSP to stop bending in the roof of the mouth and secure the sensor in the holder

Due to the lack of back support on the endodontic holder, many image receptors bend in the roof of the mouth and the apex of the root is missed or elongated

FROM PREVIOUS PAGE>

5. Bitewing images

When using a black waterproof cover in a dark mouth with a heat seal round the edge, it becomes very difficult to see the mesial edge of the image receptor. This was not such a problem with emulsion film because the waterproof cover was white. To overcome this difficulty, use bite tabs around the front edge of the waterproof cover to allow exact positioning of the bitewing sensor (Fig 5). It should be possible to image two premolars and two molars on one phosphor plate (size 2).

6. Ambient light image removal ensuring the image stays captured. Are your right and left bite wings the same shades of grey?

After image acquisition, the plates should be protected from ambient light image removal (Figs 6a and b). The exposed plates should not be left, even for a few minutes, unprotected from light even when in a waterproof packet. Ideally, when taking the images, the room blinds should be closed and the lights dimmed and light boxes switched off. As the image is cleared in the scanner by light, the plate should be kept as dark as possible when image capturing and when being transferred to the scanner.

To ensure this, the exposed plate should be kept in a light tight box prior to scanning and the scanner should be positioned in a dim room away from bright lights to enable plates to be loaded without losing image quality.

Special black boxes can be purchased that allow the plate to be posted in the top like a money box. Light cannot get in and the latent image will be safe until it is transported to the scanner. Alternatively, a dental appliance box or similar could be used. These are small, light tight, easy to clean, non-expensive and possibly already in the practice.

7. Exposure settings

PSPs have wide exposure latitude, which means they can give similar results when using a number of different exposures, unlike emulsion films which will be light or dark in relation to the exposure. A number of test images can be taken using step wedges or extracted teeth to ascertain the lowest exposure that gives an acceptable enhanced image. This becomes the maximum exposure. Guidance should be sought from a medical physicist to ensure that exposure settings are adjusted when a practice moves to a digital system.

Other problems that can be encountered are with images that lack contrast and have an overall grey appearance ("greying out") (Fig 7). These are not images that can be enhanced by the computer to give more contrast. It is possible that the exposure is too low. If changes of exposure are being considered to give better quality images then guidance once again should be sought from your medical physicist.

8. Artefacts that mimic pathology. Unsharp Mask Subtraction (UMS)

Many of the image acquisition processes on digital systems are outwith the control of the user. These are intended to improve the image but sometimes artefacts that mimic pathology can result.

Areas where there are high intensities, like the base of a restoration or around dense bone, can result in a dark halo effect which can look like pathology. This is called "rebound artefact". During processing and prior to viewing on the monitor, part of the acquisition process takes a blurred version of the image and subtracts it from the original. The blurred image is wider than the original and so when subtracted it can cause a shadow effect (Fig 8).

Image processing artefacts are becoming more subtle with more sophisticated systems. To minimise potential misdiagnosis, it might be prudent to consider other areas unrelated to the area in question and consider if the halo effect is present.

9. Viewing conditions

Many dental surgeries are bright, well-lit rooms. This can cause problems when reading images on computer monitors. It is important to ensure that optimum viewing conditions are obtained to allow accurate assessment of the computerised image. The monitor should be placed in a dimly lit area where the light levels are approximately equal to that which would be normal in an overcast day or darker. A light level of about 50 to 100 lux, the SI unit of luminescence, would be acceptable. Many surgeries are lit to a level of 300 to 500 lux which is too bright for optimum viewing conditions. The solution is to move the monitor or place a hood around it to cut down on light pollution.

10. Monitors

Test patterns that can be used to check monitor condition can be downloaded from the web: Society of Motion Pictures and Television Engineers (SMPTE) (Fig 9) and Technical Group 18 QC (TG18-QC).

These images should be captured and archived to be displayed at regular intervals, possibly monthly. These test the overall operation of the system and should be viewed in the same light conditions used in the surgery when viewing digital images. These images should be viewed full-screen for all tests. Whichever test pattern is used, the monitor should be checked for brightness, contrast, resolution and geometric distortion.

There are two squares on the test pattern, one black and one white, which are marked 5 per cent detail on the 0 per cent square (black) and 95 per cent detail on the 100 per cent square (white). Both of these should be distinctly visible and if not the monitor settings should be adjusted until they become so. Most monitors cope better with the 95/100 per cent than the 0/5 per cent but if the ambient light is kept low then both should be clearly visible. (*Figure 9*)

SSDs contain solid state materials such as amorphous silicon or amorphous selenium in their construction. There are two types of detectors containing either a charge coupled device (CCD) or complementary metal oxide semiconductor (CMOS). The intra-oral systems generally have a flexible cable connecting the detector directly to the PC. Images are collected in real time and can be viewed on the monitor.

The sensors are bulky and rigid and compromised patients, children and elderly, will probably not deal well with SSDs. In comparison to conventional film or PSPs the imaging area is smaller and, as a result, approximately three less points of interest will be captured by the Direct Digital Sensor (Fig 10). Consequently, accurate positioning is essential to cover the area of interest. The presence of the cable will not allow the teeth to be in occlusion during the taking of bite wing radiographs (Fig 11).

A consequence of overexposure could be pixel overload "blooming" which can result in black banding on the image.

ABOUT THE AUTHOR

Barbara Lamb qualified as a general radiographer in 1974 and, since then, has worked exclusively as a specialised radiographer in the dental field.

FIGURE 5
Bitewing tab around the front edge of the waterproof cover to allow exact positioning

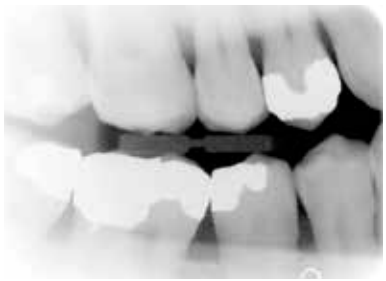

FIGURE 6 A
Ambient light image removal

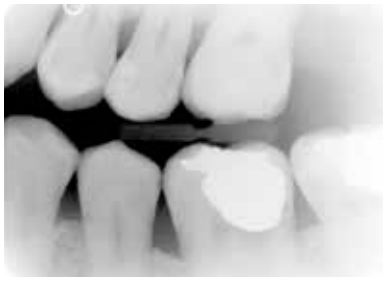

FIGURE 6 B
Ambient light image removal

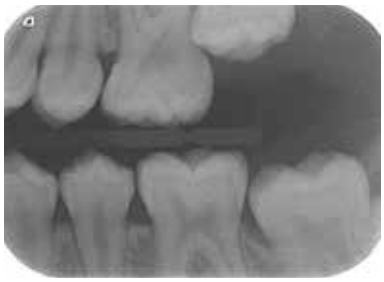

FIGURE 7
"Greying out"

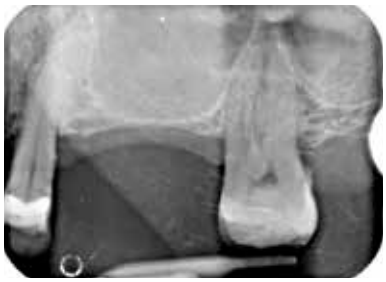

FIGURE 8
Artefact mimicking pathology

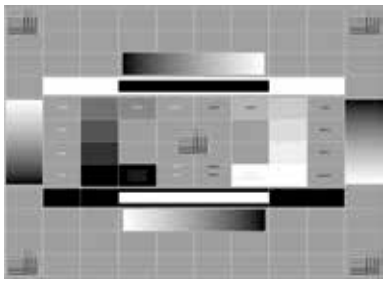

FIGURE 9
SMPTE Test pattern

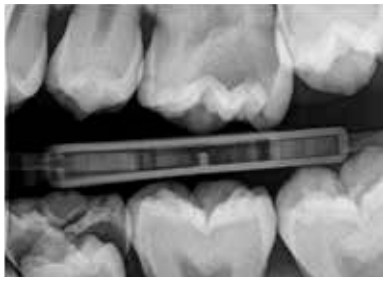

FIGURE 10
Images with Solid State Detectors can be smaller than equivalent film or PSPs

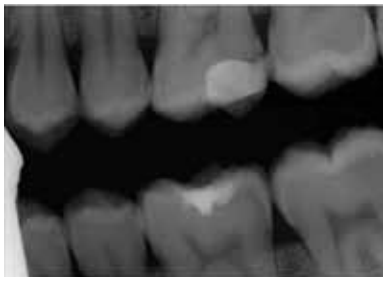

FIGURE 11
Solid State Detectors Bitewing holders limiting occlusion

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VERIFIABLE CPD QUESTIONS

AIMS & OBS:

- To provide an update on digital radiographic image production.
- To provide an overview of quality assurance when working with digital imaging systems in general dental practice.
- To illustrate some of the common problems encountered when using digital imaging systems in general dental practice.

LEARNING OUTCOMES:

- Be aware of the process by which digital images are produced.
- Have an understanding of the different types of digital systems available.
- Be aware of how to overcome practical difficulties when working with different types of digital systems in practice.
- Be able to provide direction to other members of the dental team to achieve good quality day to day digital images.

EXAMPLE QUESTION

In relation to digital radiography, which of these statements is true?

A. Solid-state sensors (CCD/CMOS) are thinner than an intraoral film.
B. The photostimulate phosphor plate system produces an instantaneous image on the computer monitor.
C. The solid-state CCD type sensors are usually tolerated well by compromised patients.
D. A lower dose of radiation is required to produce an image than when using radiographic film.
E. Sensors need to be chemically processed in the same way as conventional film based radiographs.

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ENSURING AN ACCURATE DIAGNOSIS

ENDODONTICS

The first part of specialist endodontist Julie Kilgariff's update on diagnostic terminology in endodontics focuses on pulpal diagnoses

JULIE KILGARIFF

Most routine dental treatment provided to patients is aimed at preventing pulpal and periradicular inflammation and infection. However, it is known that numerous patients seeking emergency dental care have pain of either pulpal and/or periradicular origin[1,2]. Thus it is essential that clinicians are conversant in up-to-date recommended pulpal and periradicular diagnostic terminologies for identifying both healthy and diseased tissues and the associated appropriate management options.

In 2009, The American Association of Endodontists (AAE)[3] released a consensus statement generated from the recommendations of the invitation-only Consensus Conference held in the USA in 2008. This document suggested the adoption of consistent, standardised pulpal and periradicular descriptive terminologies pragmatically based on typical clinical presentations (rather than histological findings).

The aims were to aid accurate endodontic diagnosis and hence treatment, and to enhance communication to patients and colleagues and to heighten understanding of the often degenerative sequence of endodontic disease. Descriptions of the clinical findings for each of the suggested diagnostic terminologies have been produced, however, there is a spectrum of presenting signs and symptoms for odontogenic pain and those patients who fall out with the 'central tendency' of the usual clinical presenting features are much more challenging to diagnose.

Furthermore, every clinician should be mindful of the dynamic nature of pulpal and periradicular disease which can manifest in both asymptomatic and symptomatic presentations and it is not uncommon for symptomatic conditions to undergo asymptomatic periods and vice versa.

The diagnosis is made following systematic and detailed exploration of the patients' pain, dental and medical history, clinical and radiological examination, and appropriate special tests and investigations likely to help identify pulpal and periradicular changes. Medico-legal advice[4] recommends documenting details of presenting history, examination, investigations/special tests, diagnoses made and decisions taken/treatment plan made etc. These endorsements are further reinforced within the 2013 guidance from the General Dental Council[5].

It is recommended that a pulpal and periradicular diagnosis should be made for every endodontically involved tooth. This means that, if evidence of a previously pulp-capped, pulpotomised or root-filled tooth is seen, for example on a bitewing radiograph, or a patient gives a history of such treatment, it would be advisable to then examine that tooth clinically for signs and/or symptoms of pulpal and/or periradicular inflammation and infection, and document the results of these findings (both positive and negative) within the patient records.

Depending on the clinical findings related to such a tooth, a periapical radiograph may be considered, particularly if signs or symptoms of possible pulpal and/or periradicular inflammation or infection are identified, or where further restorative intervention is planned for the tooth[6].

The diagnostic terminology presented in this article aims to update clinicians with current terminologies and the most likely clinical scenario encountered with each. Familiarity with this information can facilitate more accurate diagnosis, communication and management of the health or disease of the pulp and /or periradicular tissues. Early diagnosis in endodontics can not only impact favourably on the treatment outcome, but can also involve less expensive, more cost-effective treatment for patients.

Figures 1a and 1b show an example of a late diagnosis which, if made earlier, may have delayed or prevented the loss of a strategic tooth in an elderly, periodontally

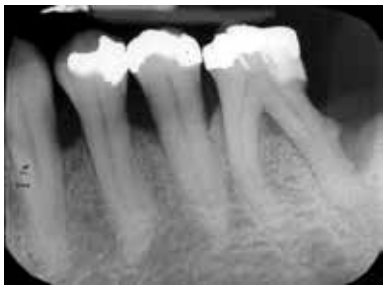

FIGURE 1A
Tooth 36 was investigated in 2006 because of sporadic low grade symptoms from 36. No pulpal diagnosis was made and no treatment advised/ embarked on. The radiograph shows early signs of a pulpal necrosis most likely because of either the extensive intracoronal restoration present +/- the extent of periodontal disease around the distal root

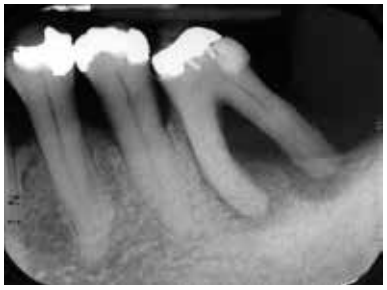

FIGURE 1B
In 2009, tooth 36 displayed the features of a pulpal necrosis and chronic periradicular abscess clinically. A further radiograph was taken, a hopeless prognosis advised and the tooth extracted

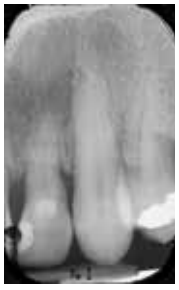

FIGURE 2A
Patient attended for a routine review and reported that tooth 22 had become mobile following a traumatic impact. The radiograph was taken and no further tests carried out on the tooth. The diagnosis recorded in the dental records was 'mobility due to periodontal disease.' The horizontal fracture in the apical third was not identified and no treatment other than non-surgical periodontal care was provided

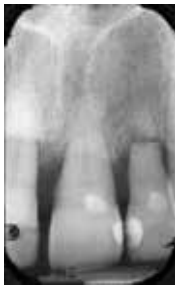

FIGURE 2B
The patient returned one year later reporting that the mobility of tooth 22 was becoming problematic and a further radiograph was taken showing external inflammatory root resorption of the horizontal fracture site and periodontal bone loss to the fracture site. A hopeless prognosis was advised and the tooth extracted

Clinicians are limited by many of the tests available which often deduce indirect rather than direct information regarding the status of the pulp

compromised patient. Figures 2a and 2b show a tooth with a reduced periodontal support which could potentially have been successfully managed had a horizontal root fracture been identified earlier.

Table 1 (overleaf) lists the terminologies suggested by the AAE and it is advised that both a pulpal and periradicular diagnosis is made and documented for each endodontically involved tooth. For example: symptomatic irreversible pulpitis and normal apical tissues.

In formulating an endodontic diagnosis, it is accepted that patient responses to investigations and special tests can be notoriously variable. Clinicians are limited by many of the tests available which often deduce indirect rather than direct information regarding the status of the pulp and/or periradicular tissues[7]. Furthermore, no commonly available tests are 100 per cent accurate 100 per cent of the time. And, consequently, the more information clinicians gather regarding the likely status of the pulp and/or periradicular tissues (through using a variety of tests and investigations), the more probable that the diagnosis made will reflect the true status of the pulp and/or periradicular tissues, including identification of when there is no pulpal and/or periradicular disease.

In all cases, it is recommended that a normally functioning tooth with a normal pulp is first tested to generate baseline information against which the test results of potentially problematic teeth can be compared. Discussion of these investigations and tests and their accuracy is outwith the scope of this article and the reader is directed to two excellent papers for more information – Mejàre and colleagues[7] and Pretty and Maupomé[8].

CONTINUED OVERLEAF>

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FROM PREVIOUS PAGE>

How to identify a clinically healthy/normal pulp

Table 2 illustrates the findings usually associated with a clinically normal pulp. A clinically normal pulp would be expected to respond and function within normal parameters although, histologically, evidence of previous inflammation (fibrosis) may be seen.

Where a tooth is identified, for example on a bitewing radiograph as appearing to have had a previous pulpotomy or pulp cap, further investigation of the pulpal status of that tooth is warranted to confirm whether the tooth is functioning with an apparently clinically normal pulp or not. This is because such teeth are recognised to be susceptible to loosing pulpal vitality in a protracted, asymptomatic fashion that can go undetected[9]. Diagnosis and treatment of pulpal degeneration at a stage which precedes pulpal necrosis and periradicular changes seen radiographically, is well known to be associated with a more favourable endodontic treatment outcome[10].

What are the clinical signs and symptoms of a reversible pulpitis?

Table 3 summarises the clinical signs and symptoms of a reversible pulpitis. In contrast to an irreversible pulpitis, the discomfort experienced from a reversible pulpitis is always caused by a stimulus and never spontaneously occurring.

Dentine sensitivity or hypersensitivity is included under the umbrella of a reversible pulpitis and is an unusual situation in that a chronic pulpal problem can develop and persist although it is not normally associated with degenerating to an irreversible pulpitis.

Reversible pulpitis can be successfully treated by removing any irritant present (such as caries) and protecting exposed dentine (as in the case of a dentine hypersensitivity). This should allow the pulp to return to normal function. However, it is prudent to follow-up and pulp test any teeth which are thought to be at risk of developing an irreversible pulpitis as it is currently impossible to ascertain clinically an individual tooth's ability to recover from a reversible pulpitis.

The capacity for pulpal recovery will be influenced by previous pulpal insults and inflammation, the degree of pulpal fibrosis and the true histological status of the pulp. Using a minimum of two assessment methods to assess the pulpal status should generate a more reliable assessment of the pulp at the time of symptoms. These can be repeated two to four weeks later for teeth identified as being at risk of undergoing an asymptomatic degeneration of the pulp or an irreversible pulpitis and then necrosis (e.g. heavily restored teeth in older individuals).

What are the clinical signs and symptoms of a symptomatic irreversible pulpitis?

The clinical signs and symptoms demonstrated within this diagnosis are notoriously variable in both intensity of symptoms and the signs/symptoms themselves. Table 4 outlines the varying clinical scenarios which can present to the clinician for this pulpal diagnosis.

Referred, unlocalised pain is regarded as common in symptomatic irreversible pulpitis and so tests which help localise pain can be very useful. For example, selective anaesthesia can aid in localising between mandibular and maxillary pain. Electric pulp testing and other thermal tests can often help highlight the tooth which is the source of the pain.

In contrast to a reversible pulpitis, the discomfort experienced with a symptomatic irreversible pulpitis often arises spontaneously, in the absence of any stimulus and the pain may be worsened by postural changes. Analgesics and systemic antimicrobials are notoriously ineffective in relieving the pain felt with a symptomatic irreversible pulpitis.

What are the clinical signs and symptoms of an asymptomatic irreversible pulpitis?

Teeth which have had pulp caps or pulpotomies performed due to carious pulp exposures are known to be at risk of losing vitality in a slow, asymptomatic fashion because of the extent of the pre-existing inflammation in the pulp at the time of the pulpal exposure. In time, an asymptomatic pulpitis will degenerate further to pulpal necrosis.

Teeth which have a history of what appears to be a symptomatic irreversible pulpitis for which there has been no active treatment, perhaps symptoms spontaneously resolved, are also likely to have either an asymptomatic irreversible pulpitis or pulpal necrosis.

Investigation into the pulpal status of such teeth is advisable. Root canal treatment performed prior to the development of either pulpal necrosis or an identifiable pre-operative radiographic periradicular pathology has a more favourable treatment outcome. It is not unusual for dynamic changes to occur within the root canal system leading to periods of quiescence where symptomatic irreversible pulpitis is asymptomatic.

Older individuals (53 years of age or more) are reportedly at more risk of developing asymptomatic irreversible pulpitis than younger individuals, the latter more frequently presenting with symptomatic irreversible pulpitis. This finding may be because of the reduced innervation of the pulp with ageing and potentially the difficulties that this poses in achieving reliable findings from pulp tests in such teeth[9].

Multi-rooted teeth are of note because each canal/pulp may be at a different stage in the degenerative process and thus teeth which are becoming non-vital may still be stimulated to give a positive response to a pulpal test, complicating the diagnostic process.

What are the clinical signs and symptoms of a pulpal necrosis?

Pulpal necrosis is the end result of an irreversible inflammation of the pulp and almost always indicates an infected root canal system is present. This is often evidenced by the development of a periradicular radiolucency seen on a periapical radiograph of the affected tooth +/- the development of other signs and/or symptoms outlined in Figure 3. This is a clear indication to undertake either a root canal treatment or extraction of the tooth in question.

'Previously Initiated' and 'Previously Treated' pulpal diagnoses

The two remaining pulpal diagnostic terminologies suggested by the AAE are 'Previously Initiated' and 'Previously Treated'. These fairly self-explanatory descriptors allude to either a tooth which has had partial endodontic treatment previously, such as a pulpotomy, pulp cap, pulp extirpation (i.e. 'Previously Initiated' endodontic treatment). The latter category describes those teeth which have had a previous root canal treatment completed or surgical endodontics performed ('Previously Treated').

Having made a pulpal diagnosis, a periradicular diagnosis can be made and the clinical scenarios and terminology associated with each will be discussed in part two of this article.

ABOUT THE AUTHOR

Julie K Kilgariff, BDS MFDS RCS MRD RCS, works as a locum consultant in endodontics at Glasgow Dental Hospital and as a specialist in endodontics at Blackhills Specialist Dental Referral Clinic, Aberuthven.

TABLE 1

AAE Pulpal & Periradicular Diagnostic Terminologies

AAE PULPAL AND PERIRADICULAR* DIAGNOSTIC TERMINOLOGIES	
Pulpal Diagnoses	Normal Pulp Reversible Pulpitis Symptomatic Irreversible Pulpitis Asymptomatic Irreversible Pulpitis Pulpal Necrosis Previously Initiated Therapy Previously Treated
Periradicular Diagnoses	Normal Periradicular Tissues Symptomatic Periradicular Periodontitis Asymptomatic Periradicular Periodontitis Acute Periradicular Abscess Chronic Periradicular Abscess Condensing Osteitis

TABLE 2

Identifying a Clinically Healthy/ Normal Pulp

DESCRIBES A PULP WITH NO CLINICAL SIGNS OR SYMPTOMS TO SUGGEST ANY FORM OF DISEASE OCCURRING	
Patient history	Nil
Clinical findings	No findings of note
Pulp tests	Reacts to cold stimuli with mild discomfort lasting for no more than one to two seconds after the stimulus is removed. Electric pulp testing does not generate an exaggerated response, any discomfort resolves seconds after removing the stimulus
Periradicular tests:	
Percussion	Negative
Palpation	Negative
Swelling/sinus	None
Radiographic findings	An intact lamina dura around the full length of the root and a normal periodontal ligament space seen

TABLE 3

The Clinical Signs and Symptoms of a Reversible Pulpitis

DESCRIBES A MILD PULPAL INFLAMMATION WHICH IS CAPABLE OF RESOLVING/ HEALING AND RETURNING TO NORMAL IF APPROPRIATELY MANAGED	
Patient history	Sharp pain to stimuli which can be thermal &/or mechanical &/or osmotic changes
	Pain is NOT spontaneous
Clinical findings	+/- caries +/- fracture of tooth/restoration +/- defective/new restorations +/- recent periodontal debridement +/- tooth surface loss +/- exposed dentine
Pulp tests	Exaggerated reaction to cold stimuli & discomfort ceases within a few seconds or immediately when the stimulus/ sensibility test removed +/- an exaggerated but short lasting discomfort to electric pulp testing
Periradicular tests:	
Percussion	Negative
Palpation	Negative
Swelling / sinus	None
Radiographic findings	Many of the relevant clinical findings described above may be evidenced radiographically NO radiographic changes seen periradicularly, normal periradicular tissues present

TABLE 4

The Clinical Signs and Symptoms of a Symptomatic Irreversible Pulpitis

DESCRIBES A PAINFUL, SEVERE PULPAL INFLAMMATION WHICH IS A DEGENERATIVE PROCESS FROM WHICH THE PULP CANNOT HEAL	
Patient history	Dull ache or throbbing severe pain +/- sleep disturbance /worse lying down Spontaneous pain lasting minutes or hours Pain may be constant or sporadic Can be hard to localize source of pain & can present as referred/radiating pain Often intense discomfort to temperature changes from foodstuff/beverages
Clinical findings	+/- deep caries +/- defective or new extensive restorations Often a heavily restored tooth
Pulp tests	Exaggerated reaction to cold, hot & electric pulp stimuli & discomfort lingers for 30 seconds or more after stimuli removed. Mild stimuli can cause extreme reaction, e.g. with heat tests
Periradicular tests:	
Percussion	Negative until periradicular tissues affected, then positive
Palpation	Negative but as periradicular tissues become affected, becomes positive
Swelling/sinus	None
Radiographic findings	A 'widened' periodontal ligament space may be seen No frank periradicular changes are seen on conventional radiographs until pulp is necrotic In cases where the source is difficult to identify, radiographic findings may suggest likely teeth: e.g. deep caries, deep restoration, dentine pins retaining a restoration

**Periradicular is generally the preferred term as it alludes to all of the tissues surrounding the root of the tooth rather than just those changes observed at the apical area of the root*

FIGURE 3
Tooth 22 exhibits evidence of a pulpal necrosis as there is a periradicular radiolucency associated with the periapical area. As this tooth had no clinical signs or symptoms other than discolouration of the clinical crown, a diagnosis of 'pulpal necrosis and asymptomatic periradicular periodontitis' was made

VERIFIABLE CPD QUESTIONS

AIMS & OBJECTIVES:

- To provide the clinician with an update on diagnosing health and disease of the dental pulp using clinically-orientated diagnostic terminologies
- To review the clinical signs and symptoms most frequently encountered for each pulpal diagnosis
- To illustrate some of the challenges involved in accurate and timely pulpal diagnosis with clinical cases

LEARNING OUTCOMES:

- Gain knowledge of up-to-date pulpal diagnostic terminologies and their meanings
- Be aware of the clinical signs and symptoms associated with each diagnosis
- Appreciate that pulpal degeneration can occur in an asymptomatic fashion
- Understand the importance of reviewing teeth with previous pulpal problems and the benefits of diagnosing pulpal degeneration early to the treatment outcome

EXAMPLE QUESTION

Patient A is 58 years-old and had a direct pulp cap placed on a carious pulp exposure in tooth 26 one year ago. At annual review, the patient reports no problems and there are no clinical signs or symptoms from this tooth. However when cold, hot and electric pulp tests are applied to tooth 26, no response is elicited. A periapical radiograph shows normal periradicular tissues.

What is the most likely clinical diagnosis?
A. Symptomatic irreversible pulpitis
B. Reversible pulpitis
C. Pulpal necrosis
D. Asymptomatic irreversible pulpitis
E. Normal pulp

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ORTHODONTIC OPTIONS FOR THE GDP

ANTERIOR ALIGNMENT ORTHO

Richard Field gained certification for the Inman Aligner in January 2013, after completing the hands-on training and online continuum with Dr Tif Qureshi. Here he discusses a recent case.

RICHARD FIELD

A young female patient presented concerned about her protruding laterals (Figs 1-3). When discussing the options available, it was made clear that treatment by a specialist is generally accepted as gold standard. Among other anterior alignment devices discussed, the Inman Aligner was suggested as an option.

Photos were taken and the Spacewize+ software used to analyse the arch form, confirming the patient's suitability for treatment and predicting the amount of IPR (Interproximal Reduction) needed. The Spacewize+ trace also acts as an occlusal plan which the digital setup, created by the lab, follows exactly. The treatment plan was confirmed using the Inman Aligner support forum.

Once the treatment was explained, impressions were sent to the laboratory. All Inman Aligners are built on 3D printed models of the final result and this was shown to the patient to gain full consent from her before proceeding.

Three weeks later, the Inman Aligner was fitted. Composite anchors were placed palatally on the centrals to procline the teeth, and half of the total estimated IPR and PPR was performed according to the guide provided by the lab. The patient was instructed on how to place and remove the appliance, and to turn the midline screw once per week.

The patient was reviewed at two and then four weeks, by which time the centrals were in a good position. Composite anchors were then placed labially on the laterals and the labial powerchain activated.

Six weeks into treatment, the mid-line screw no longer required turning and with the laterals sufficiently retracted, the powerchain was switched for the standard acrylic labial bow. IPR was performed and the Inman Aligner labial bow activated to encourage further palatal movement of the laterals, which was left in place for four weeks. Impressions were then taken for an upper hard retainer and whitening trays. The patient used Enlighten Evo Night whitening for two weeks over-night, using the upper retainer as a bleaching tray to ensure retention.

Review of the bleaching procedure demonstrated good results and the patient was very happy. Cosmetic contouring of the incisal edges of the upper centrals and the upper left canine was then preformed. A fixed wire retainer was also bonded from the upper left to right canine (Fig 4), and the patient was advised to wear the removable retainer three nights per week.

The straightening aspect of the treatment took 10 weeks, with the patient achieving her desired smile aesthetics in 12 weeks (Figs 5 and 6).

FIGURE 1
Pre operative smile

FIGURE 2
Pre operative left view

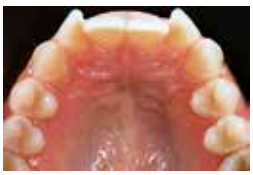

FIGURE 3
Pre operative upper arch

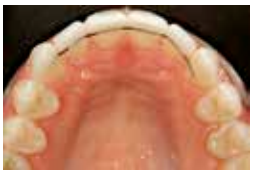

FIGURE 4
Upper bonded wire fitted

FIGURE 5
Final smile

FIGURE 6
Final results left view

ABOUT
The Inman Aligner course is part of the IAS Academy pathway of training for GDPs – it is now a continuum and two cases must be submitted and evaluated on completion for website listing.

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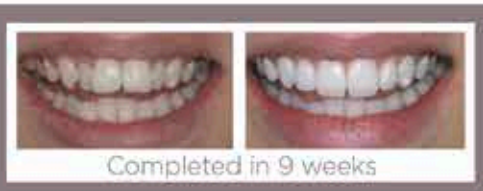

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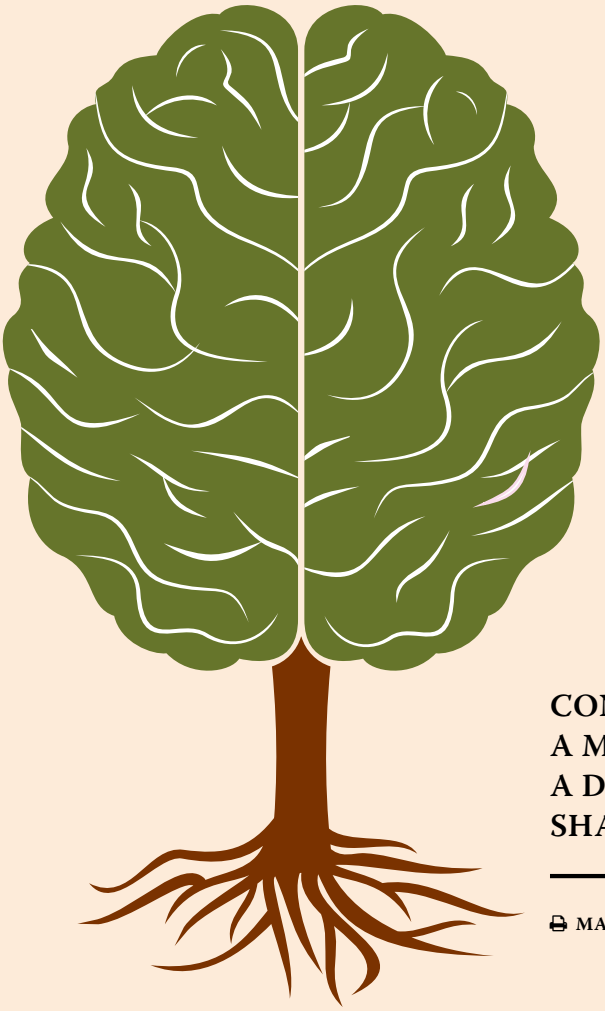
DCP focus

INTEGRATING DCPs INTO THE DENTAL CARE TEAM

FRONTLINE

DENTAL TEAM'S VITAL ROLE IN RESEARCH

See page 82



MAKE AN EDUCATED CHOICE

CONTINUING PROFESSIONAL DEVELOPMENT IS NOW A MANDATORY REQUIREMENT FOR ALL MEMBERS OF A DENTAL TEAM AND OFFERS THE OPPORTUNITY TO SHARPEN EXISTING SKILLS AND DEVELOP NEW ONES

MARGARET ROSS MIKE WILKINSON

Since 2008, Continuing Professional Development (CPD) has been a mandatory requirement for all members of the dental team, and is one of the essential components of maintaining registration with the General Dental Council (GDC).

The principle functions of the GDC are to protect patients and to register all members of the dental team. It is a privilege to be in a position of caring for patients, whether you are involved in providing treatment or acting in a supportive professional role, both of which are equally important. Being a registrant carries with it responsibilities to our patients and to ourselves as healthcare professionals. If the standards which are expected of us are jeopardised in any way, then registration can be removed either temporarily or permanently. The numbers of cases involving Dental Care Professionals (DCPs) which are brought to the attention of the GDC Fitness to Practise Committee are comparatively small but sadly, they are on the increase.

> "IT IS A PRIVILEGE TO BE IN A POSITION OF CARING FOR PATIENTS, WHETHER YOU ARE INVOLVED IN GIVING TREATMENT OR ACTING IN A SUPPORTIVE PROFESSIONAL ROLE"

To achieve a primary qualification in any aspect of dentistry is only the first stage of education in what should be a lifelong continuum of professional development and enhancement. As all professionals are aware, DCPs must undertake at least 150 hours of CPD every five years and, at least 50 of these should be 'verifiable' and must include documentary evidence of attendance at any event. It is the individual's responsibility to keep a record of all CPD as the GDC carries out random audits of registrants to ensure that CPD has been completed. CPD should be exciting, it should provide you with new and up-to-date information and it should leave you with a thirst for further knowledge. At times, it can be challenging as it may disagree with previously held theories and ideas. All things evolve and this is very much the case with the role and significance of DCPs within the dental team.

> "DENTISTRY HAS PERHAPS UNDERGONE ITS MOST RADICAL CHANGE IN RECENT YEARS WHERE WE HAVE HAD THE EMERGENCE OF NEW GROUPS OF DCPS, NAMELY ORTHODONTIC THERAPISTS AND CLINICAL DENTAL TECHNICIANS"

Dentistry has perhaps undergone its most radical change in recent years where we have had the emergence of new groups of DCPs namely Orthodontic Therapists and Clinical Dental Technicians who wish to focus their clinical skills, and an expansion of roles and responsibilities of existing

RIGHT: Margaret Ross, senior lecturer for DCPs at the University of Edinburgh, advocates continuing professional development across the industry

team members. This means that there are now six groups of DCPs all of whom have equal importance, with the common purpose of caring for and treating the patient. Perhaps one of the major developments has been in relation to the advent of 'Direct Access' for patients to dental hygienists and therapists. This was met with a mixed response by the dental profession, and there was a great deal of initial unrest about the effect this would have on the provision of treatment for patients. As with so many things that produce a predominantly emotional response, attract publicity and sometimes hostile dialogue, the unrest disappeared relatively quickly.

Those opposed to this major change appeared to realise that hygienist-therapists did not want to open practices and enter the business of dentistry, but merely be recognised for their clinical ability and professional status.

There are a number of statutory regulations which are hindering the progress of Direct Access to allow it to function as it was intended. Some of these would appear to be simple to rectify, for example involving the administration of local analgesia or the application of fluoride but surprisingly, they are not. This is as a result of these items belonging to the group of 'Prescription only Medicines' which can currently only be prescribed by a dentist. The other issue is in relation to the allocation of NHS list numbers which would allow hygienists and therapists to provide services directly to patients within the NHS.

These essential changes to facilitate full professional effectiveness for these clinicians will involve protracted but necessary legal processes which, it is hoped, will be instigated as soon as possible.

The scope of practice for all DCPs may well expand in the future as a result of changing demographics and workforce planning. We already have dental nurses employed in the Childsmile Programme, where they make a significant contribution to the prevention of caries by applying fluoride varnish to the primary dentition of nursery school children.

This is a clinical breakthrough for dental nurses, as it is the first time they have actively been involved in providing treatment for patients. In addition to the many professional further qualifications available to them, the GDC Scope of Practice document highlights a number of other clinical activities dental nurses can provide if they are trained and competent to do so. These include placing rubber dam, pouring, casting and trimming study models and removing sutures after the wound has been checked by a dentist. There are several additional skills which can also be acquired by dental technicians, for example, in relation to intra-oral scanning for CAD/CAM or carrying out implant framework assessments. The options for development are many and varied for all DCPs and are only likely to increase for each professional group. These skills are all dependent on CPD and aspiring to work to one's full potential, avoiding professional or educational stagnation!

CPD is a vital component in each dental professional's career, not merely to maintain GDC registration but to remain up-to-date with knowledge, techniques and procedures. It should be appropriate to the field in which you are employed and not just something which 'ticks the box' from a GDC perspective. Continuing education is at the core of all professional development and it should be embraced and sought after. Any future change in the delivery of dentistry in the UK depends on having a workforce which is educationally and intellectually prepared to meet new challenges.

The world of dentistry is not static but moves in response to the sophistication of techniques, the skills of the dental team and the changing oral health needs of the population. Dental Care Professionals are central to effective, high quality patient care and this innovative section of the magazine will aim to provide an educational and inspirational resource at your fingertips!

HOW TO WORK ALONGSIDE AND NOT ON TOP OF PARTICIPATING PRACTICES...

BRUCE OXLEY MIKE WILKINSON

A team of dental nurses and hygienist/therapists at the University of Dundee are working to change the face of modern dental research by keeping the patient at the heart of everything they do.

Based at the Dental Health Services Research Unit (DHSRU), the team have become an integral part of several major dental research trials that are currently being carried out across the UK.

Hygienist/therapist Laura Lovelock along with clinical dental research nurses Jill Gouick, Fiona Mitchell and Fiona Ord are involved with recruitment, collection of information and follow-up for trials such as IQuaD, INTERVAL, HOPSCOTCH and EDOCALD (for info, visit bit.ly/DHSRU).

ESSENTIAL TEAM MEMBERS

"I wouldn't consider doing a trial without the team. Absolutely not," says Professor Jan Clarkson, co-director of DHSRU and director of the Effective Dental Practice Programme at the University of Dundee.

She explained that their input and interaction with patients and participating practices has changed the way DHSRU conducts research.

She said: "Over the years we have designed trials differently. Initially, we were expecting the dentist and the practice team to do all of the paperwork and the consenting. That is a very different job from the one they do on a day-to-day basis.

"Now the research teams go out to practices and they know exactly what to do and how to get patients on board. They can be in and out, almost without the practice being disturbed, they are amazing.

"They get to know the dental practices and the teams there. They are also effectively available to offer constant support for the practices."

This new approach has started to bring very real benefits to the trials they are involved with. Prof Clarkson continued: "For IQuaD there were more than 2,000 participants who were assessed as being eligible and invited to take part, and only 150 said no. That is phenomenal.

"In medicine, recruitment to trials is the hardest thing to do."

As well as recruitment, the research team travel the length and breadth of the UK, from the Highlands and Islands of Scotland to practices in Northern Ireland, the north of England, Birmingham, London and Wales. They also have input from the very start of trials.

BELOW: Marilyn Laird DHSRU and senior trials administrator

Prof Clarkson said: "We would be absolutely lost without them. They are an integral part the research team and can ask some of the most probing questions of our methods and certainly the process. They are hugely valuable at all stages of the execution of a piece of research.

"They contribute to devising the methods and process and even something like the sense of the question. They have a good grasp of research methods but it is their practical experience and ability to deliver it that is absolutely essential."

This sentiment is backed up by Marilyn Laird, DHSRU and senior trials administrator. She said: "We have learned many lessons throughout the journeys of the trials and, if we had to do the trials again, we would make sure that we had dental research nurses and hygienist/therapists involved from the very start.

"They all play a key role both strategically and operationally. Our team know the way the practices work, they are familiar with the processes, challenges, day-to-day running and paperwork required. They are a crucial link between the trial admin office and the practices.

"The richness and quality of information that they collect during visits feeds back into the decision making and planning."

IN PRACTICE

The team themselves all have a background working in clinical dentistry and therefore know the pressures and demands of a busy general practice. This gives them a vital insight and allows them to work alongside and not on top of, the participating practices.

Laura Lovelock, who was recruited for the first round of IQuaD and has just come back on board for the next phase, explained what it is about research that excites her. She said: "I love being out in

CONTINUED OVERLEAF>

BELOW: Prof Jan Clarkson (standing) with (l-r) Fiona Ord, Laura Lovelock, Jill Gouick and Fiona Mitchell

THE TEAM ALL HAVE A BACKGROUND IN CLINICAL DENTISTRY AND KNOW THE PRESSURES AND DEMANDS OF A BUSY GENERAL PRACTICE

EVERYONE HAS A VOICE WHETHER YOU ARE A HEALTH ECONOMIST, RESEARCHER OR INVESTIGATOR

FROM PREVIOUS PAGE>

practices, recruiting patients and getting them excited and enthused about clinical research. It's great to meet fellow dental professionals across the country, seeing different ways of working and being at the forefront of improving practice.

"Research is what drives dentistry forward and helps to give us the best possible practice, so it is great to be a part of that."

And Jill Gouick echoed that sentiment by saying: "The best part is always seeing the patients and that will always be the most exciting part. But I'm also very enthused about the outcomes, because we are playing an important role in making new discoveries and uncovering information that could really make a difference to the future of the patients' dental care."

"I think if you enjoy working with the public," said Fiona Mitchell, "you don't lose that with dental research. People often think, as I did initially, that dental research doesn't move out of the office or laboratory and that you are immersed in paperwork. Dental research isn't like that.

"We travel all over the UK and have contact with many participants and dental professionals in their own clinical settings. This is very rewarding and I feel very fortunate to be part of this team."

And, while Fiona Ord reiterated her colleagues' enjoyment of working with patients and practices, she said that she is motivated by the evidence.

She said: "I enjoy being part of the research team, adding to the knowledge base, improving the quality of care delivered to patients as part of an evidence-based approach."

With their clinical experience, the research team are expertly placed to communicate with patients and put them at ease, before and often during the research itself.

Fiona Ord explained that, while they are in the practice, their interpersonal skills come to the fore. She said: "When we visit a practice to carry out research, the patients see that we are researchers who have a knowledge and understanding of dental treatments. We are dental professionals gathering data for the trial."

Jill Gouick continued: "As a clinical researcher, we can provide the support, understanding and a more holistic view of their visit."

Laura Lovelock added: "One of the key characteristics of a clinical dental research professional, as with any time you are treating patients, is being non-judgemental, having an open mind and being open with patients.

"Making the patients feel relaxed about taking part in research, answering all their questions and keeping them well informed are essential in the delivery of our role."

LEARNING CURVE

"Although I have been working in dental research and on trials for many years," said Marilyn Laird, "every day is still a school day on a trial. It's a constant learning process.

"Whether you are an administrator, health economist, researcher or investigator, everyone has a voice and the diversity of opinions are always welcome and valued."

And Laura Lovelock insisted that the team ethic is prevalent throughout the research process. She said: "Particularly here at the DHSRU, we meet regularly for team discussions. The planning takes on a collaborative approach and, as a team, we drive the trial forward. Investigators and collaborators always take our comments and advice on board."

Compared to when they started on the IQuaD trial in 2012, Jill Gouick reflected how their experience and involvement so far has enabled them to provide more and more advice and input to their colleagues. She said: "When we first started we all came in brand new to research.

"Now, however, as we are going in to our fourth trial, we can almost predict what would be best practice, and the requirements for each element and stage of the research study/trial.

"We are able to advise straight away, from our knowledge gained through meticulous, ethically-driven planning of previous trials, what has worked best, through experience and from patients and practices feeding back to us."

JOIN THE TEAM

HYGIENIST/THERAPISTS

The DHSRU is looking to recruit two hygienist/therapists to work alongside the current dental research team. The first post is three days per week and the second is full-time. Deadline for applications is 24 April 2015. For more details and to apply, visit bit.ly/dundeeresearchjobs

THE ULTIMATE IN IMPLANT EDUCATION

ONLINE IMPLANT EDUCATOR PARTNERS WITH LEADING IMPLANT COMPANY AND ANNOUNCES GLASGOW PRACTICE AS ITS SCOTTISH FLAGSHIP CENTRE

The widespread use and published success of dental implant-supported restorations is encouraging more and more GDPs to become involved in this treatment modality. A visit to the dentists section of the Yellow Pages makes it difficult to ignore the fact that increasing numbers of practitioners are using the label "Cosmetic and Implant Practice".

Ensuring that the clinician has the appropriate knowledge and skills to undertake dental implant treatment is of paramount importance. The first step towards treating the patient is case assessment where attention to detail and identification of the salient features of the case are essential. Even if a general practitioner does not wish to undertake the provision of implant treatment, it is almost certain that he or she will be caring for patients with implant-supported restorations. A component of that care will be assessment of the health of the implant restoration(s) for which an understanding of implant dentistry is essential.

In January 2015, Nobel Biocare UK joined forces with SmileTube.tv to produce an education partnership that will lead the way in education and training in implant dentistry. In our connected world, SmileTube.tv leverages information communication technology to enhance the learning experience and minimise disruption to the busy routine of the GDP.

With interactive web-based material available 24/7, the whole learning experience is greatly enhanced compared to the didactic lecture scenario. The competent implant practitioner will also require the necessary skills set. SmileTube.tv is proud to have the Scottish Centre for Excellence in Dentistry (www.scottishdentistry.com) as its leading clinical centre in Scotland.

Geared towards the RCS Edinburgh Diploma in Implant Dentistry, the course sets high standards and now, in partnership with one of the world's leading implant companies, Nobel Biocare, the student experience and journey on their career in implant dentistry will be second to none.

If you would like to find out more about the Ultimate Implant Year Course, visit www.SmileTube.tv or feel free to contact Janine, one of the learning community facilitators, at Janine@smiletube.tv or on 07742 609 686. Alternatively, contact Yvonne at SCED at yvonnemuir@scottishdentistry.com or by phone on 0141 427 4530.

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SCOTS DENTISTS BRAVE PLUMMETING TEMPERATURES TO ATTEND THE CHICAGO DENTAL SOCIETY'S 150TH MIDWINTER MEETING

(l-r) Michael Dhesi and Jamie Barrie from Clyde Dental; Dr Jun Lim, CDS meeting chairman; Tom Slack and Ally Fraser from Clyde Dental and Dr George Zehak, president-elect of the CDS

SUB-ZERO DENTISTRY

A group of Scottish dentists braved sub-zero temperatures to attend America's biggest and most successful dental conference recently.

Clive Schmulian, along with colleagues from the Clyde Dental group, was joined by Alastair MacDonald from MacEndo, FGDP West of Scotland divisional director Conor O'Malley and SCED clinical director Arshad Ali at the 150th Midwinter Meeting of the Chicago Dental Society (CDS).

And, despite the mercury dipping as low as minus 10 degrees, the event was attended by nearly 30,000 dental professionals and exhibitors.

Clive said: "It was great to see so many Scottish dentists at the Midwinter Meeting of the Chicago Dental Society. It was a great experience to attend America's biggest dental meeting.

"Inside the conference centre the CDS delivered a wide range of CPD lectures and a huge trade show, but a trip to Chicago is not complete without jazz bars and the Magnificent Mile shops.

"We are all looking forward to seeing more of our Scottish colleagues heading to the Windy City in 2016."

The 2016 Midwinter Meeting will take place on 25-27 February and will carry the theme 'iMeeting'. CDS president-elect George Zehak said: "It has been designed for you: the individual. It has everyone in mind: the new dentist, the dentist in mid-career, the dentist in later years of practice, the hygienist, the dental assistant, office staff, and every person in dental care whether inside or outside the office; that includes our lab partners and exhibitors."

SOLUTIONS FOR ALL YOUR ORAL HYGIENE NEEDS

SOLUTIONS FOR EVERY PROBLEM: the NSK range of ultrasonic cleaners has been designed to deliver fantastic results whichever model is being used

For those more stubborn areas of stain and calculus build-up, the NSK range of ultrasonic cleaners are perfect for the job. The NSK Varios 970 is particularly effective as it benefits from the high-powered NSK iPiezo engine that provides more effective and comfortable treatment in all applications.

The Varios 970's performance is now smoother and more efficient. Even in difficult-to-reach areas, the Varios works perfectly and the patient remains comfortable.

The Varios range benefits from the extensive selection of more than 70 tips to meet scaling, restorative, maintenance, endodontic and periodontic needs. The Varios 970 LUX features twin LED lights, assuring clearer vision and allowing easier identification of calculus and plaque during oral hygiene and scaling procedures.

NSK's Prophy-Mate neo is a proven and easy to use air-driven tooth polishing system that makes routine cleaning and polishing procedures easier and more efficient than ever before. Patients will love the feel of their teeth after the FLASH pearl polishing powder has gently removed superficial stains and calculus.

Avoiding injury to the soft tissue and root surfaces during the cleaning of delicate periodontal pockets and around implants is essential.

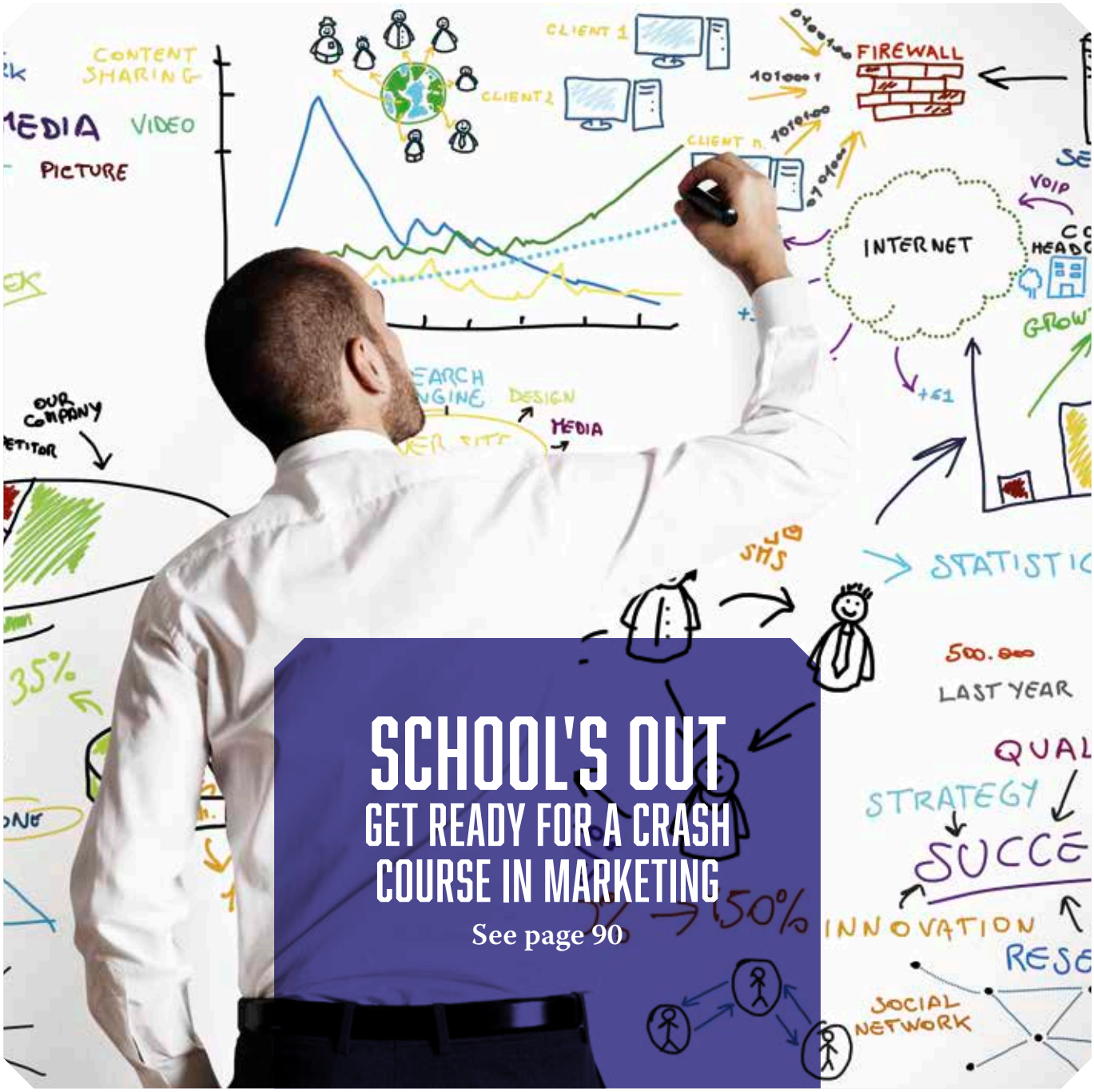
The NSK Perio-Mate is the perfect choice to complete these treatments in as little as 20 seconds. The ultrafine water spray and glycine-based Perio-Mate powder combine to gently eradicate biofilm in periodontal and peri-implantitis cases. Perio-Mate's slim nozzle and fine, thin and flexible nozzle tip make procedures safer while maintaining optimal visibility and operability.

ABOUT

For more information on these products or for a 10-day, no-obligation 'try before you buy', visit www.nsk-uk.com call NSK on 0800 634 1909 or your preferred dental supplier. Alternatively, contact Angela Glasgow, territory manager, NSK Scotland, on 07525 911 006. Twitter: @NSK_UK Facebook: NSK UK Ltd

Management

PRACTICAL INFORMATION FOR PRACTICE MANAGEMENT PROFESSIONALS



SCHOOL'S OUT
GET READY FOR A CRASH COURSE IN MARKETING

See page 90

THERE IS NO MAGIC NEEDED TO PROVIDE EFFECTIVE MARKETING AND A FEW SIMPLE STEPS CAN TAKE YOUR PRACTICE TO THE NEXT LEVEL

Marketing your practice is an often-misunderstood activity, notwithstanding that dentistry is a conservative industry and any kind of activity that is seen to promote what you do can lead to discouraging remarks from your peers.

However, in recent memory, dentistry was awash with money, patients were plentiful and you only had to open your doors and patients would visit you. You would earn good money without having to try very hard to attract and retain customers (yes, customers) and that was it.

Times are different now. Patients are better educated about what they need, leading to less asymmetry between the client with a problem and what you had to offer to solve it. Patients expect more and are less tolerant of poor service, they have high expectations of added value thanks, in part, to the raising of the consumer game by successful businesses such as supermarkets, Amazon and many others.

For example, in your personal life, you perhaps now routinely get a text to remind you that your car is due its service, an email reminder that your house insurance is up, a message to your phone that a hair appointment is looming or your dinner reservation is confirmed. Convenient.

What these businesses are doing is, in fact, marketing. They are creating an experience that is associated with their brand, identity and product or service that leaves a positive impression on their customers and will, hopefully, make them want to go back to them and tell their friends about them.

However, you don't need to act like a big supermarket or a flash online retailer to make a similar impact. Marketing is, in fact simple and cost-effective to do if you know how to effectively allocate your resources.

> "YOU DON'T NEED TO ACT LIKE A BIG SUPERMARKET OR A FLASH ONLINE RETAILER TO MAKE A SIMILAR IMPACT. MARKETING IS, IN FACT SIMPLE"
>
> MARK FOWLER

Here is an example. A young dentist was visiting a practice in Glasgow. He was thinking of buying a (private) practice in England and his attitude was that people would just visit his practice and pay his prices. He looked around at the (NHS) practice in Glasgow he was visiting and was totally blown away by the small stand of business cards prominently displayed at the reception desk. He asked: "Who does your marketing?"

Now, that suggests that you don't need to do very much to stand out from the crowd and, in fact, the humble business card is a much-overlooked marketing tool. Here's why.

- Business cards are cheap to buy.
- They can be placed prominently at your reception.
- They can be given to every clinician in your practice. Why?

Because after each patient who leaves, assuming they are happy, clinicians should be giving their patient a card or two and asking for a referral. For example: "We would love to grow the practice and I would like more patients like you. Could you tell your friends and family about us?"

This will stick in their minds (after all, their dentist has just asked them to take some action that is not to do with brushing their teeth) and may well lead to one of their friends or a family member walking through your door and, hey presto, a new patient for a few pence and a recommendation from someone who has actually been to you. What could be better?

Extend this to your reception team. Get them into the habit of asking for referrals and handing out cards at the end of treatment. This is a very powerful and inexpensive way of growing your practice and widening your service delivery.

So, in the conservative world of dentistry, while the mere presence of a business card blows some people away, get a step ahead and use the cards as a referral tool. Cheap and powerful. You can't lose.

THE SYSTEM WORKS

MAKE YOUR PRACTICE STAND OUT FROM THE CROWD BY OFFERING A CONSISTENT AND HIGH-QUALITY EXPERIENCE

MARK FOWLER

Let's recall a time when you have received excellent customer service, attention to detail or a high-quality experience? How did it make you feel? Have you ever wondered how that business made that happen?

Here is a personal example. I recently attended a conference that was held at a well-known hotel in Glasgow. I used the bathroom twice during the day (lots of coffee). Each time, I noticed that the toilet paper was folded into a 'V', the toilets were spotless, the bins were empty and the soap bottles and toiletries all had their labels facing the front. Each time. What attention to detail. How is it done?

The answer is simple: Systemisation. Design. Planning. Training. Not luck or chance. Or reliance on someone "just knowing their job" and what to do. Or being a mind reader.

Operation of those guest bathrooms is pared down to a set of instructions or a system that sets out, in simple terms, what, when and how operation of that bathroom is to look like, what is expected and who is in charge of it, who they will be accountable to and how that accountability will be managed. This means that the "experience" of using that part of the hotel is consistently high, appears effortless and leaves a great impression.

In practice, it will mean that someone is responsible for visiting that part of the hotel at regular intervals, folding the toilet paper, emptying the bins, turning the soaps, cleaning the sinks and so on.

They will know exactly what to do, since it is all written down in a simple instruction sheet (and they will have had relevant training using that sheet, and possibly even helped design the system itself) with a tick box protocol to show that it has been done or that the tasks have been completed so that nothing is forgotten.

There will perhaps even be photographs to illustrate what the bathroom should look like at the end. The manager then only has to inspect the job and identify whether it has been carried out or not.

This systemisation of jobs and tasks is often criticised because it allegedly prevents team members from thinking for themselves. Not so. In reality, it frees up team members from concentrating on what or how they are doing something to why they are doing something. In the earlier example it means that guests of the hotel consistently experience a high-quality environment.

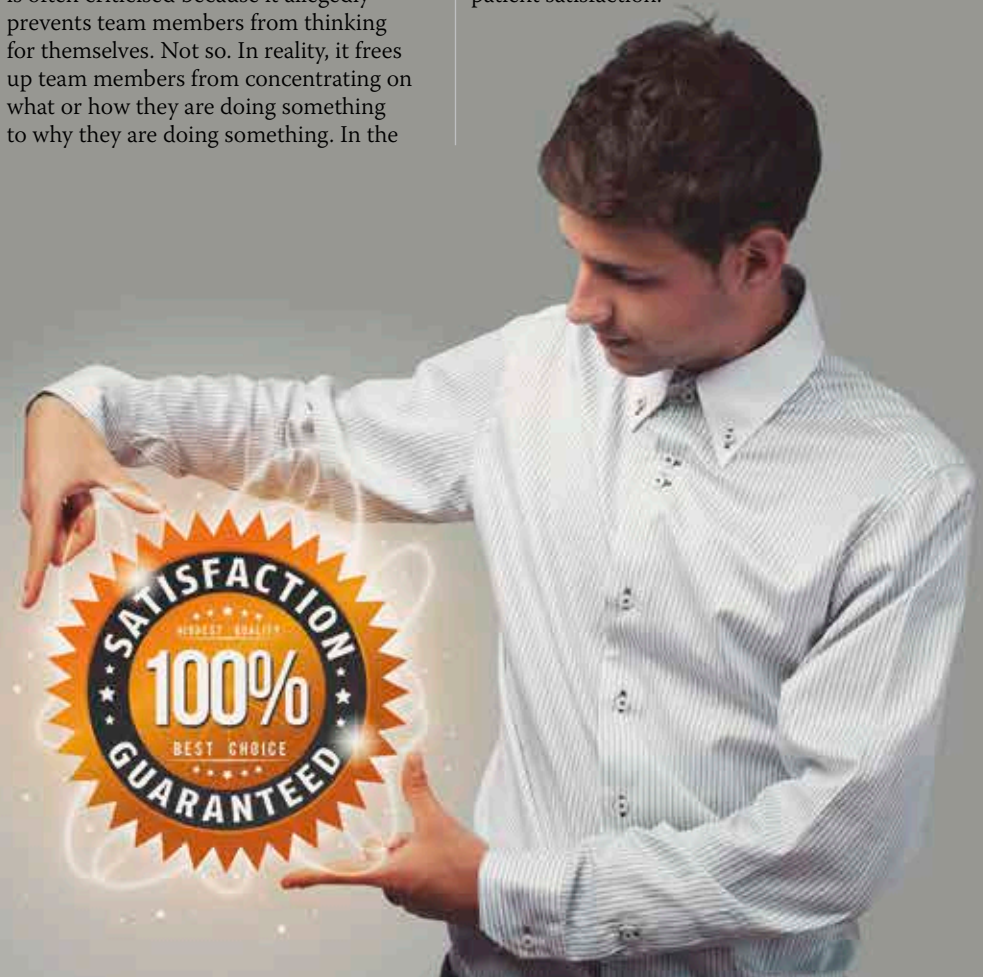
Systems also allow teams to add their own value, contributing to and refining the systems that they use and using experience gained at first hand, rather than being the gatekeepers of how things are done. Empowering teams with systems also leads to enhanced job satisfaction.

Practices that work with systems report that their teams adapt well to using a set of instructions and a structured approach, since it avoids any ambiguity and means that, for unfamiliar tasks, it can be referred to time and again.

Ultimately, of course, it will be your patients who will benefit, since they will get a much more consistent service every time they visit or interact with you and this consistency will make them feel more satisfaction towards your services.

After all, that is what you are aiming for: patient satisfaction.

PRACTICES THAT WORK WITH SYSTEMS REPORT THAT THEIR TEAMS ADAPT WELL TO USING A SET OF INSTRUCTIONS AND A STRUCTURED APPROACH



PROVIDING SPECIALIST ADVICE FOR SCOTTISH PRACTITIONERS

SCOTTISH-BASED ASSOCIATION AIMS TO PROVIDE ADVICE ON BUYING, SELLING AND RUNNING DENTAL PRACTICES

The Association of Scottish Dental Professionals (ASDP) is the brainchild of Ian Main of Stark Main & Co Dental Chartered Accountants and Chartered Tax Advisers. He has provided specialist accountancy advice to dental practitioners for several years.

It became apparent to Ian that his clients were finding it difficult to secure advice from other professionals such as solicitors, surveyors, lenders, IP specialists and business transfer specialists.

The Scottish dental sector is unique in terms of the issues it experiences and in practice management, financing, remuneration and other areas. The ASDP acknowledges the differences between Scotland and England and provides a focus on Scotland.

The group was formed in late 2013 and have worked together on a number of projects to the benefit of our targeted client group, dental practitioners.

The overriding ethos of the ASDP is to ensure that it provides Scottish-based dental practitioners with the full range of specialist advice necessary to help them acquire, run and sell dental practices.

The founder members are: Bank of Scotland, Stark Main & Co Dental, Davidson Chalmers, DM Hall, Skyridge Financial Planning, Software of Excellence and Strictly Confidental. If you visit the website www.asdp.org.uk you will be able to see the links to the individual members' sites which will provide you with more information on the services they provide.

Members are here to help and the identified contacts from the association are happy to have an informal initial discussion with any interested parties on a without prejudice and free of charge basis.

STARK MAIN & CO DENTAL

Ian Main heads up the Stark Main & Co Dental team and was responsible for the launch of the Edinburgh Office serving the Scottish dental market.

He has a wide range of expertise to offer the dental market and, as a qualified chartered accountant, Ian specialises in practice advisory and tax planning services. Ian has a well-rounded background of experience and has assisted numerous dentists to derive maximum efficiency and return from their practice, as well as being involved in a number of high-impact advisory roles. With a 100 per cent success rate in raising finance for practice acquisitions Ian has particular strength in this area. The firm is an award-winning chartered tax advisory and accountancy firm who became winners of the Small Firm of the Year at the Scottish Accountancy and Finance Awards 2014 and winner of Independent Firm of the Year for the whole of the UK for the British Accountancy Awards, also in 2014.

Ian said: "We pride ourselves on the difference we can make with clients and we make it our business to understand the dental sector in Scotland in order to provide a high-quality service to our clients."

PLEASE CONTACT IAN FOR A FREE CONSULTATION ON 0131 248 2570 OR EMAIL IAN@STARKMAINDENTAL.CO.UK

"WE PRIDE OURSELVES ON THE DIFFERENCE WE CAN MAKE WITH CLIENTS AND WE MAKE IT OUR BUSINESS TO UNDERSTAND THE DENTAL SECTOR IN SCOTLAND IN ORDER TO PROVIDE A HIGH-QUALITY SERVICE"

STRICTLY CONFIDENTAL

Strictly Confidental has been operating for more than 16 years within the dental profession in Scotland.

It can source and supply all relevant information regarding sales, valuations and acquisitions of dental practices and can assist with recruitment.

- Sales – selling and relocating, we will effortlessly start the process.
- Valuation – dental equipment, goodwill, insurance and legal.
- Purchase – acquiring a practice or practices.
- Recruitment – contact us to fill your temporary/permanent vacancy for either an associate (full or part-time) or a locum position.

All of our valuations and meetings are held out of hours and on weekends, to ensure a confidential service is provided.

FOR MORE INFORMATION, CONTACT PATRICIA MUNRO ON 07906 135 033 OR VISIT WWW.STRICTLYCONFIDENTAL.CO.UK

SOFTWARE OF EXCELLENCE

What does it take to turn a good dental practice into a great business?

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FOR MORE INFORMATION, CONTACT IAN HAMILTON, REGIONAL BUSINESS MANAGER ON 07814 370 797 OR EMAIL IAN.HAMILTON@SOEUK.COM

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In HealthCare Banking we provide services for GPs, dentists, pharmacy, vets, opticians, care homes and children's day nursery. Our ambition is to be recognisable as the leading healthcare bank in the UK with a well-trained professional team and excellent service; noticeably different from the competition.

All our HealthCare managers are trained by external professionals, keep up-to-date through a CPD programme and have to take an annual reaccreditation test.

We provide a wide range of tailored financial products and services, created for the health care sector.

We also have up-to-date knowledge of the dental sector and the changes and issues affecting it.

FOR MORE INFORMATION, CONTACT SCOTT BEATON, HEALTHCARE RELATIONSHIP MANAGER ON 07725 425 573 OR EMAIL SCOTT.BEATON@BANKOFSCOTLAND.CO.UK

"WHETHER IT'S ASSOCIATE AGREEMENTS OR THE SALE OF DENTAL PRACTICES, ALMOST EVERY ASPECT OF DENTAL LAW REQUIRES LAWYERS WITH IN-DEPTH EXPERIENCE AND KNOWLEDGE OF THE SECTOR"

DAVIDSON CHALMERS

Whether it's PCT contracts, expense sharing agreements, associate agreements, protected tenancies or the acquisition and sale of dental practices, almost every aspect of dental law requires lawyers with in-depth experience and knowledge of the sector.

The Davidson Chalmers team is experienced in providing specialist legal advice for dentists in all aspects of acquiring, managing and selling practices. We advise on a wide range of issues including partnership, commercial property and employment and HR matters.

Headed by Craig Stirling, the team also advises on expense sharing agreements, dental partnership agreements, dental associate agreements, buying or leasing property, and many other aspects of dental practice management.

Craig Stirling is one of the few Scottish solicitors to possess this sector specific knowledge and expertise.

Craig was a founding member of the Association of Scottish Dental Professionals (ASDP) and was one of the first Scottish solicitors admitted to the National Association of Specialist Dental Accountants and Lawyers (NASDAL) network.

CONTACT CRAIG ON 0131 625 9191 OR EMAIL CRAIG.STIRLING@DAVIDSONCHALMERS.COM

Davidson Chalmers. We mean business.

DM HALL

DM Hall is one of Scotland's largest firms of independent Chartered Surveyors with offices in every principal Scottish city and town.

The firm recognised a number of years ago that there was a gap in the information available to dental practitioners who were either thinking of selling or acquiring a practice.

In response, DM Hall has put in place a team of five dedicated specialist valuers who provide specific advice in respect of the value of dental businesses, surgeries and centres.

DM Hall is a founding member of the ASDP, with a view to ensuring that dentists are able to secure professional property and business valuation advice.

The form is accepted by the majority of the banks and lenders who are actively supporting the dental sector and DM Hall prides itself on its depth and range of knowledge and experience. DM Hall aims to offer good quality, well researched and affordable advice. The team of valuers, headed up by George Nisbet, FRICS, has in excess of 100 years of valuation experience between them.

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“If your practice is incorporated as a limited company then, as with many reliefs, there are several conditions to be met for limited company share sales”

MONEY TALKS

IT’S NOT JUST TEETH THAT NEED TO BE LOOKED AFTER ON A DAILY BASIS – FINANCIAL PLANNING SHOULD BE PART OF YOUR EVERYDAY ROUTINE TOO

TRICIA HALLIDAY

“LOOK after your assets and they will look after you,” says business adviser Tricia Halliday of Martin Aitken & Co Chartered Accountants, as she reveals money-planning tips to help dental practitioners improve their financial affairs.

This tax year finishes, and a new one begins, on 6 April, so this is the ideal time to think about how tax planning can provide stability and financial peace of mind for you, your family and your dental practice.

There were some tax rule changes in last year’s Autumn Statement; those combined with next month’s Budget and the fast approaching General Election – where we may see some pre-election ‘give-aways’ – means that the time is ripe to get those financial plans in place.

So, how much tax should be paid? The tax-free income personal allowance for tax year 2015/16 will be £10,500, with basic tax rate sitting at 20 per cent. Then a higher tax rate tax of 40 per cent kicks in on earnings above £42,285.

If your net income exceeds £100,000, your personal allowance is reduced by £1 for every £2 of excess income, which produces a marginal tax rate of 60 per cent. If you earn more than £150,000, you will continue to be taxed at 45 per cent.

The new Scottish rate of income tax will come into effect from 6 April 2016. Further news and advice for taxpayers and employers will be available shortly, and we will keep you posted as the position becomes clearer.

Staff costs are a major expense for many practices. There are currently no plans in place for any increases in rates for National Insurance Contributions (NIC) for employers, employees or Class 4 NIC. It should be noted, however, that the thresholds will be increased for 2015/16.

Employee contributions are payable at 12 per cent on earnings between £155-£815 per week and 13.8 per cent employer contributions will start at £156 per week. The £2,000 employment allowance will continue to be deductible from employers’ NIC.

Thinking about hiring new staff? If so, from 6 April employers with employees under the age of 21 will no longer have to pay Class 1 NICs on earnings up to the Upper Secondary Threshold, but the zero rate will not apply to Class 1A or Class 1B NICs. Employees will continue to pay the standard rate of primary Class 1 NICs through their salary – only employers will benefit from this change.

Capital Allowances on the purchase of practice instruments and other equipment represents a valuable tax deduction for your business. The Annual Investment Allowance, which allows a 100 per cent write-off for tax purposes, remains in place with the annual limit of £500,000 until at least 31 December. This level should cover most practice expenditure.

When considering the sale of your business, Entrepreneurs’ Relief (ER) should reduce your Capital Gains Tax (CGT) bill.

The rate of tax which applies to the sale of your business would normally be 18 per cent or 28 per cent but the good news is that ER allows the business vendor to pay only 10 per cent, thus preserving up to 90 per cent of the sale proceeds.

If you are considering selling a practice and you are in the position to have made a gain, the tax can be delayed by reinvesting the proceeds in another qualifying asset – such as another practice. The investment window allows proceeds to be invested in qualifying assets acquired one year before and three years after the sale of the original asset. The gain is deferred until sale of the new asset.

If your practice is incorporated as a limited company then, as with many reliefs, there are several conditions to be met for limited company share sales. The conditions are more stringent than for a sale of your business. The relief is conditional on the percentage held, the length of ownership and the company fulfilling certain trading requirements, so do get professional advice as soon as you start thinking about selling.

Capital Gains Tax is also payable when you sell a second home or other non-business asset that has gained substantially in value.

Tax rates remain at 18 per cent for basic rate taxpayers and 28 per cent for higher rate payers. Capital gains are now exempt from CGT up to £11,100. However, there are ways to reduce the extent of tax payable, for example transferring ownership to a spouse.

With current income tax rates, it is worth converting your income into capital to access the lower 18 per cent/28 per cent tax rates when the asset is eventually sold. Property investments are the best example, with the added benefit of an income stream from, for example, a Buy-to-Let. Did you know that, even if the asset is sold at a loss, this can be relieved against current and future gains?

I hope that this information gives your money planning a bit more bite and helps you to improve, or enhance, your financial affairs in the future.

ABOUT THIS ARTICLE
Further information can be found on our website, www.maco.co.uk, or by calling Tricia direct at Martin Aitken & Co Ltd on 0141 272 0000.

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John Cowan, one of our partners, is a member of the National Association of Specialist Dental Accountants and Lawyers (NASDAL).

Our service is partner led and John and other senior colleagues are always happy to answer any legal questions that you may have either face-to-face or by phone or email.

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MORE INFO
For more details, contact John on 0141 227 6022, email jbc@millersamuel.co.uk or visit www.millersamuel.co.uk

Practice structure – what is best for you?

STARK MAIN & CO DENTAL ADVISES THAT RECENT TAX CHANGES COULD HAVE A SIGNIFICANT IMPACT ON YOUR DENTAL PRACTICE

IAN MAIN

In the Chancellor's Autumn Statement he announced (buried amid the detail) a fundamental change to the taxation of businesses converting from a sole trader/partnership to a limited company.

You would be excused for missing this announcement, but it could have significant impact on you if this was something you were considering for your dental practice.

We regularly advise practices on the best structure to maximise their tax efficiencies. With our specialist expertise, we have assisted a number of practices to consider a corporate structure, taking full advantage of the legislation. Due care is required, however, around compliance, particularly in an NHS environment, to avoid loss of superannuation and practice allowances entitlement, while taking advantage of the significant annually recurring tax savings available in the right circumstances.

The changes in tax rules make it less favourable to capitalise goodwill as part of the conversion process.

Under the new rules, any capital gain achieved on this goodwill sale will now be taxed typically at 28 per cent rather than 10 per cent (where Entrepreneurs' Relief was available). The fact that the new company does not now get a corporation tax deduction for the purchased cost of this goodwill where previously it may have attracted a relief in excess of 20 per cent of price paid (for practices established since 2002) makes these changes a real double whammy.

Some commentators argue that the previous regime was particularly generous and this revised policy reflects fairness.

There remains merit in exploring whether your practice should trade via a company or not despite these changes, as there are still tax planning reasons why you may wish to adopt a corporate structure.

However, you should always take expert advice and consider the wider implications.

MORE INFO

Please get in touch should you wish a free review of your structure or to discuss further.
Stark Main & Co Dental,
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Email info@starkmaindental.co.uk
or phone 0131 248 2570

Demand for practices pushes prices up

CHRISTIE + CO'S SPECIALIST ADVISORS IN THE DENTAL SECTOR TAKE A LOOK AT HOW THE SECTOR HAS PERFORMED OVER THE PAST 12 MONTHS AND AT WHAT THE FUTURE MIGHT BRING

KARL CLEZY AND PAUL GRAHAM

Increasing demand for dental practices pushed average business property prices up during 2014 – that's according to Business Outlook 2015, the annual state of the markets report by specialist property adviser Christie + Co, which was launched recently.

Karl Clezy, of the specialist medical team at Christie + Co, says: "We are seeing an insatiable appetite for medical businesses with demand for dental practices continuing unabated throughout 2014."

He added: "Demand is strong across the UK and most instructions attract multiple offers and in many cases businesses are selling for in excess of the quoted asking price."

Paul Graham explains: "The buying process is fiercely competitive and we are seeing that individual bidders are often able to draw on third-party private funding, which means we regularly see private purchasers outbid corporate or multiple operators."

Christie + Co launched its brokerage service into the dental sector in late 2013 and in 2014 it saw significant momentum as awareness of its expertise in this market increased.

Looking ahead to what else the rest of 2015 may bring, the medical sector is an area where banks are actively lending and Christie + Co expects this to continue throughout the year.

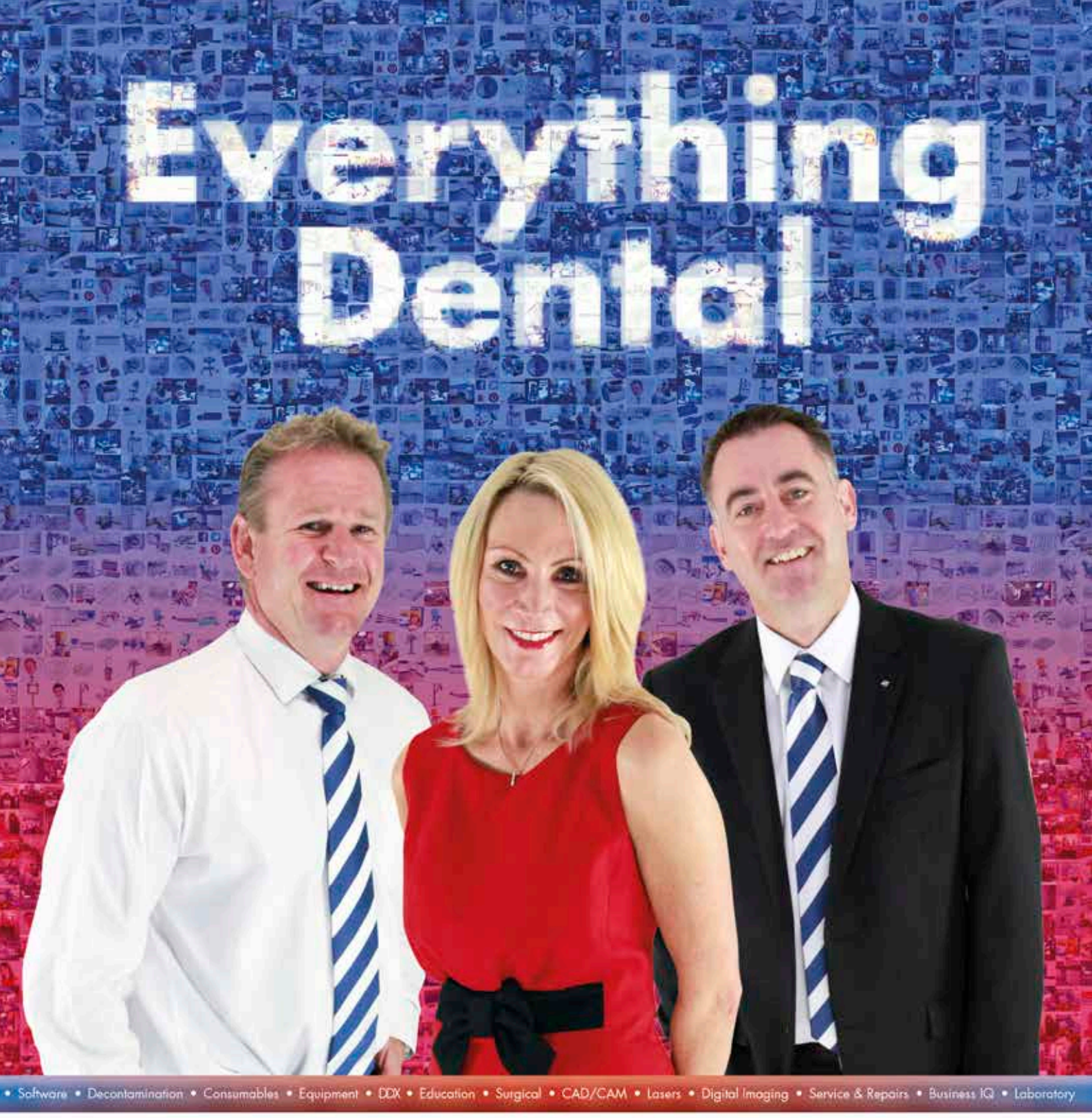
The private dentistry market will continue to improve, buoyed by an improving economy and recognition that the risk/reward of buying this type of practice is good.

ABOUT CHRISTIE + CO

The experts at Christie + Co are available to offer advice on selling, buying, financing and insuring your dental practice.
www.christie.com/en/about

> "The buying process is fiercely competitive and we are seeing that individual bidders are often able to draw on third party private funding"

Everything Dental



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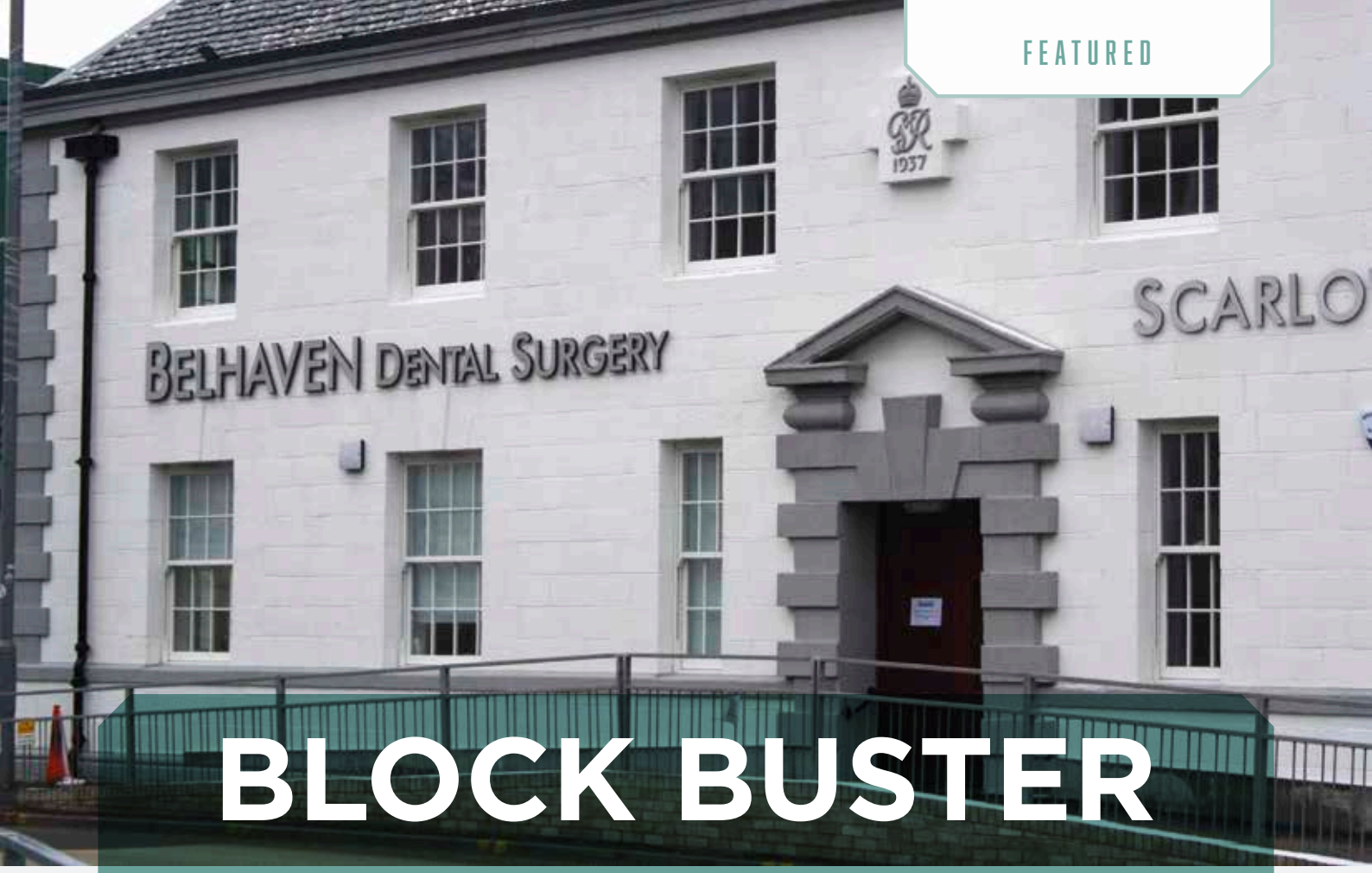

BLOCK BUSTER

HAVING OUTGROWN A WELL-LOVED BUT CRAMPED PRACTICE IN PORT GLASGOW, BELHAVEN DENTAL SURGERY'S SPACIOUS NEW HOME IS PERFECT FOR PATIENTS

BRUCE OXLEY

When Belhaven Dental Surgery opened its doors on William Street, Port Glasgow, in September 2005, such was the demand for NHS dentistry in the Inverclyde town that the queue was literally around the block.

With just principal dentist Catherine Jones, a dental nurse and a receptionist at the practice initially, it quickly became apparent that more pairs of hands would be needed. And, when 900 patients were registered in just the first two days, it wasn't long before a second dentist was taken on. As the list steadily grew over the years – it is now up to a healthy 8,000-plus – the practice itself expanded to become a four-surgery clinic featuring four dentists, two part-time hygienists and nine support staff.

However, with a small reception and waiting room, a staff room that doubled as the office and the fact that it was never intended for all four surgeries to be operating at the same time, over the years the practice started to feel more and more cramped. On top of this, Catherine had always been keen on a return to vocational training – having mentored a new graduate in 2006 – but with all four surgeries at full capacity, this just wasn't an option.

Relocation started to look like the only way forward and the problem was only compounded when the council expressed a desire to either sell or redevelop the car park that surrounded the practice building. However, the council knew Catherine was interested in potential properties for relocation so, at the start of 2013, she was approached by Riverside Inverclyde (RI), an urban regeneration company tasked with reinvigorating the 4.5-mile stretch of waterfront at Greenock and Port Glasgow.

RI had bought the former rent office building on Scarlow Street, just 500 yards up the road from Catherine's practice, and was looking for small businesses and start-ups to take up residency at what would be the new Scarlow House Business Centre. Catherine had a look around and, despite initial reservations over the light, she recognised that the space had great potential and provided an environment to equip the practice in the way she had always wanted. A deal to sell the old practice to RI and lease half of the ground floor in the new business centre on a 40-year lease was thrashed out and work eventually began in

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April 2014. The William Street practice has been earmarked for demolition in the near future and Catherine admits she will be sad to see it go. She said: "It was definitely the right decision to move from William Street but there will be a few tears when it is knocked down. I've got so many happy memories and so do the staff, but it just wasn't suitable for what we wanted to do."

Even before she bought her first practice back in 2005, Catherine had started to develop a clear idea of how she wanted to run her own business. After graduating from Glasgow in 1996, she spent the next nine years at an NHS practice in Johnstone, first as a VT and then as an associate.

She came to the decision that, when she went out on her own, she would rather start from scratch and establish a practice in her own style as opposed to buying an existing business with historical systems and procedures in place.

While William Street had previously housed a dental surgery, it had been closed for a few years and was being sold as a going concern rather than an active dental business. This appealed to Catherine in that she could implement her ideas from the start. She said: "I'd always had very clear ideas of how I wanted to do things and the old practice allowed me to do that for the first time. Things like regular staff meetings were essential and I wanted to establish an environment of development so that all the staff have opportunities and are positively encouraged to further their careers and explore areas that interest them."

On the physical side, Catherine explained that setting up the old practice had been much more challenging than the recent move to Scarlow Street. "William Street, while previously a dental practice, needed to be completed stripped out and updated, which was quite a big job," she said.

"It was also the first time I had done anything like this, so all the unknowns made it quite stressful. When it came to this latest move, I knew more of what to expect and that made it so much easier."

Happily, despite the contractors working on Scarlow Street having no direct experience of building or fitting out a dental practice, the development proceeded relatively smoothly. Technical issues around fire doors and the placement of the lift held up work for brief periods but there were no major dramas.

The new practice consists of five surgeries – meaning there is now room for a VT – a separate staff room and staff toilet, reception area that is separated from the main waiting room by a frosted glass partition to allow privacy for patients and a dedicated office behind reception. The obligatory LDU, plant room and storage areas are situated off the main corridor with each surgery clearly marked with a number

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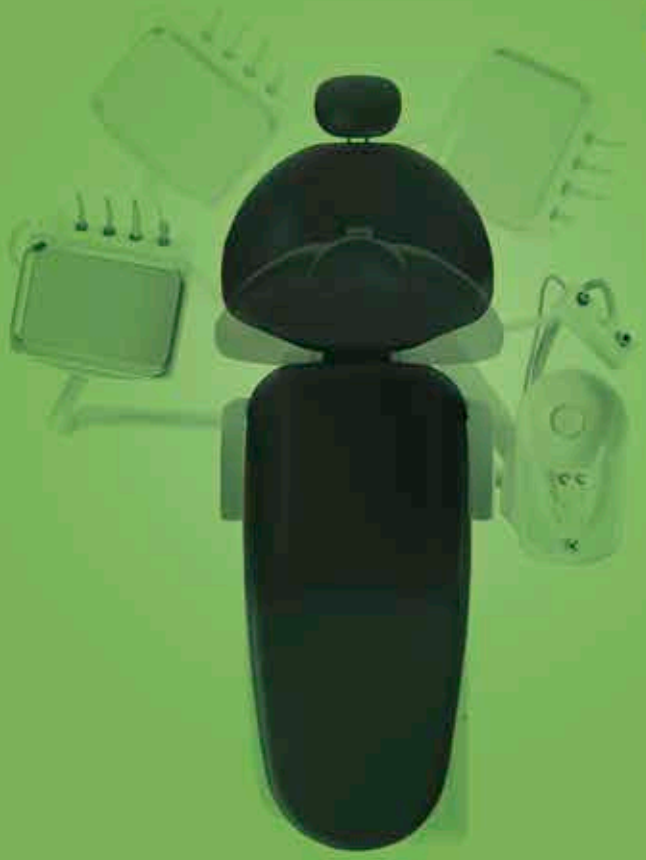

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and the dentist's name.

Bold colours and eye-catching artwork adorn the walls and Catherine believes that adds to the atmosphere in the practice. She said: "We always try to be bright and cheerful and that is reflected in the colours of the chairs and the cabinets.

"DB Dental, which fitted out the surgeries, sat down with each of the dentists and they all got to choose their own colours for the cabinets and so on.

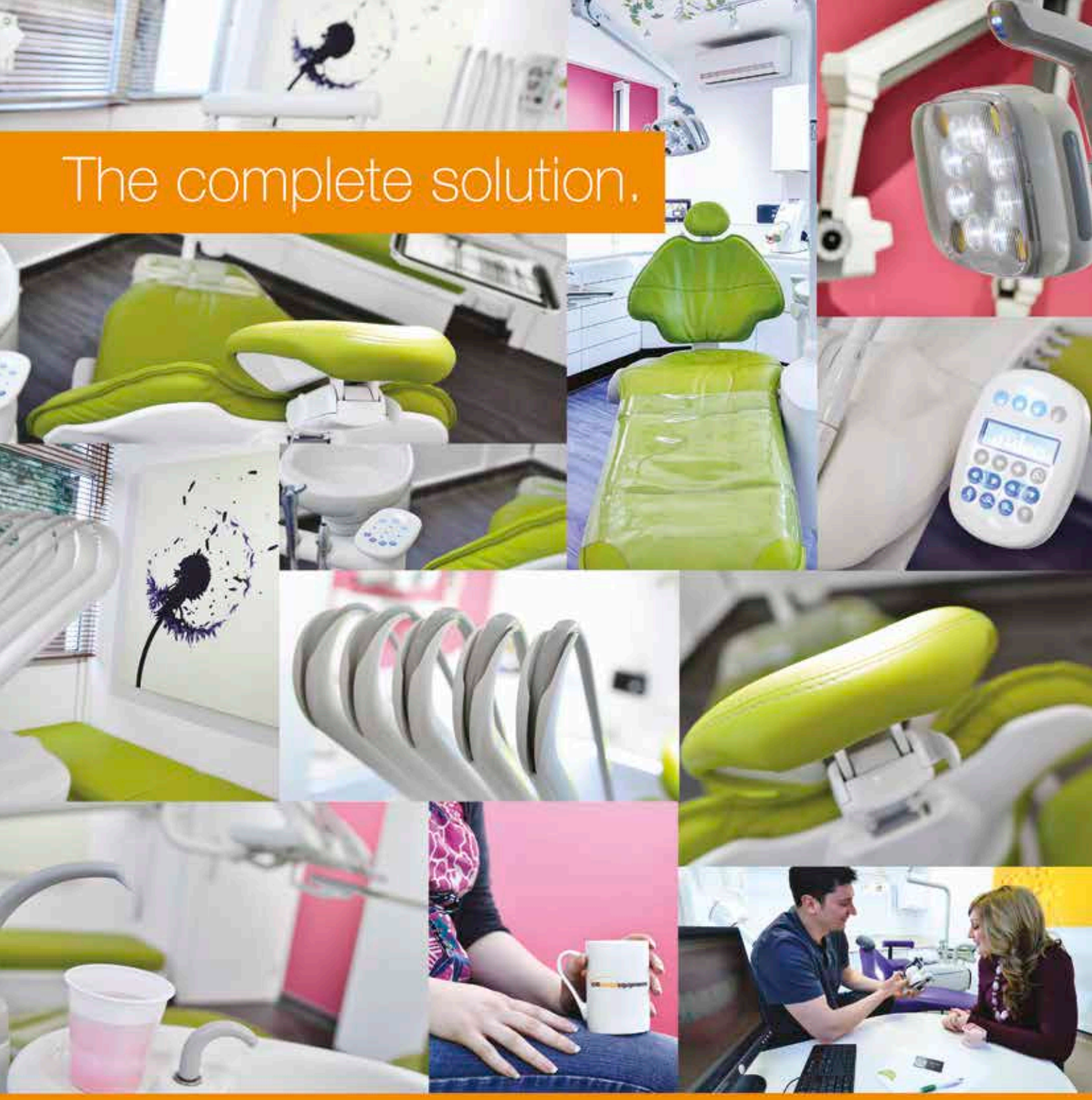
"I do think it makes a difference and we've had no end of patients commenting on the look and feel of the new building. We're all delighted."

Three chairs were brought over from the old practice, with Catherine buying two new ambidextrous chairs, one from A-dec and one from Belmont. for two of the surgeries. Ian Wilson of IW Technology Services was drafted in to install all the IT, from digital phone systems to screens in each surgery to view radiographs and for patient education. Ian also installed the Goodteith software that the practice had been using in the old building as well as transferring all their data across to Scarlow Street. A new sensor for the digital X-ray system was also bought from Carestream and a new RO machine was purchased from Eschmann for the new LDU.

IT WAS DEFINITELY THE RIGHT DECISION TO MOVE FROM WILLIAM STREET BUT THERE WILL BE A FEW TEARS WHEN IT IS KNOCKED DOWN

The Belhaven staff were hands-on with the move itself, transferring all the sundries and smaller items of equipment and helping to set up the surgeries. The dedicated store-rooms – with sundries stocked by Henry Schein Dental – are fitted with codelock doors for security and are organised to allow for optimum stock control.

The new practice opened its doors on 12 January with Catherine, her staff and patients all delighted with their new premises. She said: "Our patients have been fabulous and they have given us some lovely feedback. It has turned out even better than I expected, the look and feel of the place is great and we couldn't be happier."



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A SIMPLE PLAN

MYDENTIST IN BELLSHILL HAS A NEW NAME AND NEW PREMISES – BUT THE SAME EMPHASIS ON EXCELLENT CUSTOMER CARE AND QUALITY SERVICES

Before relocating to its new practice, space was a huge issue for the rapidly expanding Orthoworld. The previous practice "was bursting at the seams", according to clinician Umar Rehman. Now, having moved to their expansive new home, all that has changed. That isn't the only difference, either. IDH's flagship practice in Scotland also has a new name: mydentist.

Step inside this contemporary practice, in the heart of Bellshill, and you will be as impressed as the patients who are treated here. In fact, the November arrival of the state-of-the-art mydentist in Main Street (the first of its kind in Scotland) created a bit of a stir locally, so much so that passers-by popped in to admire the décor.

With laminate flooring, floor-to-ceiling windows, low-profile tables and beanbags, the reception area is unlike that of any other orthodontic practice in the country.

Its teal, white and grey colour scheme is far removed from the usual clinical whites. And its open-plan reception and waiting area for NHS patients boasts a bright and airy welcoming space. For private patients, there is a separate relaxation room. With carpets, dim lighting and comfortable armchairs, it has a beauty spa feel to it. There is also the added benefit of a private consultation room for those who wish to discuss treatment away from the surgery environment.

The interior has been designed with the patient in mind, something that was very important to Practice Manager Karen Richardson and her staff.

Clinician Alex Hamilton, who joined the practice 10 years ago, said: "For the new practice, we didn't want an overly clinical feel, nor did we want patients going from one tiny room to another. We wanted an open-plan reception area with lots of space, so it was as bright and airy as possible.

Karen said: "One of the biggest challenges was continuing this feeling of openness to the clinical areas while also maintaining patient privacy. The transformation has exceeded all our expectations."

It's not just the location, square footage, décor and name that have changed at Orthoworld – technology has advanced too. At mydentist there is a fully digital X-ray suite, and a computer-controlled pneumatic tube system that delivers used and sterilised equipment. This gadget is the first of its kind in a dental practice.

Soon the practice will benefit from a 3D scanner, which will reduce the need for storage, as all models of patients' teeth and jaws will be electronic, thus reducing the need for them to be stored on site. This also makes them readily available at the chair-side and to forward on to referring dentists. Soon, patients will receive "before" and "after" models at the beginning and end of their orthodontic journey.

Patient experience remains paramount at the practice. This is enhanced by extended opening times until 8pm and scheduling of appointments from 8am.

Clinician Krystyna explained: "Caring about patients and their experience is an important job. Dentists trust us with their patients and we take the responsibility very seriously. We want to give them the best treatment and the best experience. We hope they go back singing our praises.

"Dentistry is constantly evolving and all of the team at mydentist are committed to keeping up to date with the latest techniques and treatment philosophies.

"We love doing orthodontics – it's our passion. We are committed to the NHS and provide NHS treatment for qualifying adults. In fact, 80 per cent of our patients are NHS. We want to prove it is possible to provide high-quality orthodontics in an NHS environment. For patients who do not qualify for NHS treatment, there are a number of options including a subsidised rate for children and interest-free payment plans for adults, so we try to make it as affordable as possible."

A quote above the reception of mydentist says "a beautiful smile can change your life", and mydentist will continue to change lives with their wide range of brace options: from self-ligating brackets, that can achieve results in as little as six months, to the latest aesthetic options including Invisalign and Inman aligners.

Umar added: "When we take a patient's braces off, and see them smile, it's the best job in the world."

*Now mydentist has been launched, IDH aims to have 100 more mydentist practices by the end of March, and the full estate rebranded by the end of the year.

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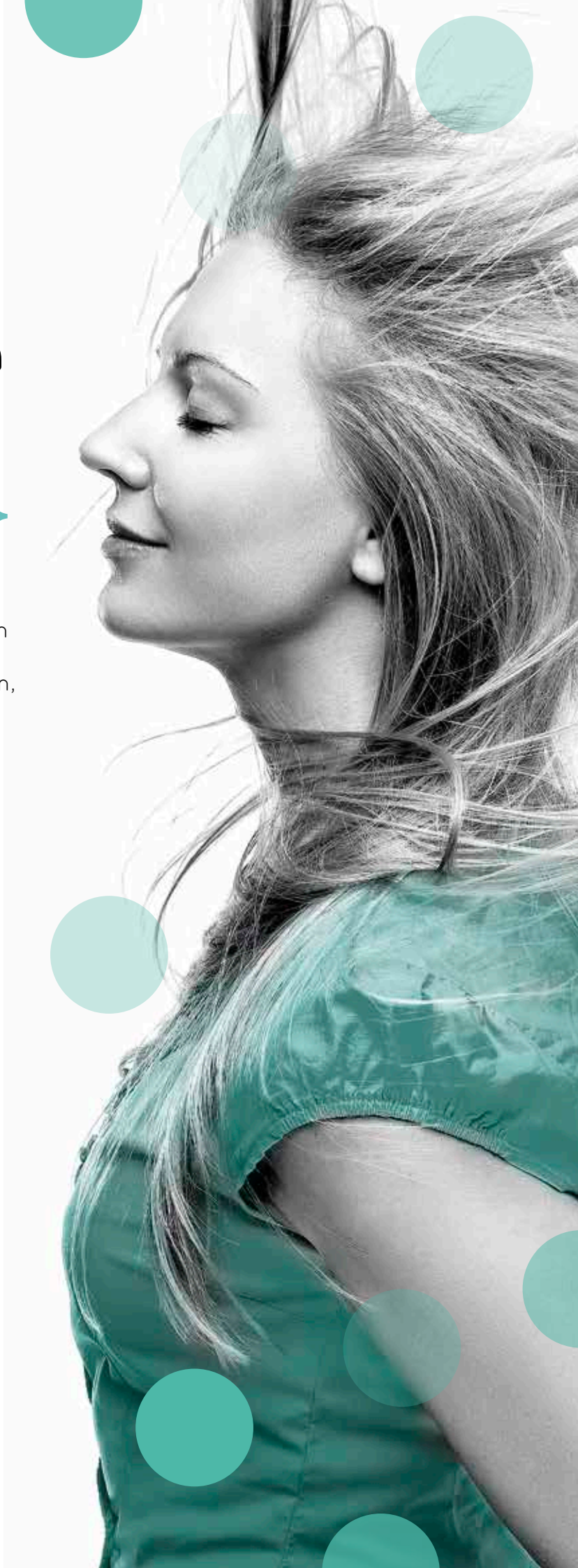

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DENPLAN APPOINTS THREE NEW DENTAL CONSULTANTS

Denplan is pleased to announce the appointment of three additional dentists to part-time posts in its professional team in 2015.

Dr Martin Fallowfield, formerly a member of the BDA's Principal Executive Committee is appointed head of professional liaison and will continue to develop Denplan's relationship with professional bodies, key opinion leaders and policymakers in healthcare.

Dr Raj Rattan, an expert in clinical care, training and professional advice is appointed head of clinical policy. And Dr Louis Mackenzie, an honorary clinical lecturer at Birmingham Dental School and Kings College Dental School, is appointed head of professional training.

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The winners, whose chairs impressed the judges were Khan Dental (@khandental), The Fulham Dentist (@fulhamdenist) and Vogue Dental Care (@voguedentalcare).

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PACK A PUNCH AGAINST GERMS

Dürr Dental's new 'Touchless' contact-free soap and disinfectant dispenser combines good looks with impressive functionality. The failsafe automatic sensor reacts as soon as your skin comes within its detection range, dosing exactly the right amount of liquid.

It can be used for disinfectant, liquid soap or hand lotion. Its aluminium, anodized casing hinders the growth of bacteria by virtue of its bacteriostatic effect. Not only is it easy to use, it's also easy to clean.

Thanks to a 'push and click' system and a pivoting discharge plate, the stainless steel pump can be removed from the front and placed back in later on without the dispenser needing to be removed from the wall.

For more info on Dürr Dental's range of hygiene products, visit www.duerrdental.com

BIG SURGERIES NEED A BIG TORNADO

Dürr Dental's Tornado compressor is now available in a larger size suitable for bigger surgeries and clinics.

The Tornado 4 combines all the advantages of its smaller predecessors, the Tornado 1 and Tornado 2; dental air of the highest quality, a compact form, excellent sturdiness and lasting value. An optional, pre-assembled, noise-reducing hood subtly emphasises the award-winning design of the Tornado. These attributes not only spare ears and nerves, the new Tornados also work substantially more efficiently than earlier models and require 15 per cent less energy for the same performance, good for both the environment and your pocket.

The units can be supplied with a membrane dryer to enable uninterrupted operation around the clock. The systems also guarantee the highest standards of hygiene through the use of an anti-bacterial inner coating on the pressure tanks.

PIONEERING INNOVATIONS AT IDS 2015

VOCO presents several remarkable novelties at IDS 2015. Take, for example, Admira Fusion – the world's first restorative material to combine ORMOCER with nanohybrid technology.

In this case, both the fillers and the matrix are based on silicon oxide. Thanks to this pure silicate technology, Admira Fusion boasts excellent biocompatibility, extremely low shrinkage, optimal colour stability and a high filler content.

The new filling system is complemented by Admira Fusion x-tra, which allows increments of up to 4 mm while displaying the same physical properties.

Further new products include the fast-setting glass ionomer material IonoStar Plus and Clip Flow, a flowable restorative material for temporary restorations.

Visit VOCO at the IDS 2015: Hall 10.2, Stands R008/009 and P010, email info@voco.com or visit www.voco.com

VOCO
THE DENTALISTS

THE COMPOSITE FOR HIGHEST STANDARDS

GrandioSO, the universal nano hybrid restorative for all classes of cavity meets the highest demands for restorations in anterior and posterior regions.

GrandioSO is suitable for class I to V restorations, reconstruction of traumatically injured anterior teeth, interlocking and splinting of loosened teeth, corrections of shape and shade to enhance aesthetic appearance, core build-up for crowns, and the fabrication of composite inlays.

GrandioSO stands out due to its superb material properties and is the most tooth-like material in the sum of its physical parameters.

This composite allows for equally durable and aesthetic restorations, due to very high filler content and low shrinkage, high compressive and flexural strength.

Email info@voco.com or visit www.voco.com for more information.

SPRINGING INTO ACTION

Demonstrating the latest exciting features of the CS R4+ practice management software, the team from Carestream Dental will be on stand B42 at the Dentistry Show.

Discover how the new R4 Springboard R4+ could further streamline your daily workflows while also helping you to accurately evaluate your practice performance. Realise the benefits of real-time data collection and analysis to enhance your chair occupancy, treatment plan uptake and appointment confirmations.

Also on display will be the innovative CS Solutions, the CS 8100 panoramic imaging system, the CS 8100 3D extraoral imaging system and the RVG 6200 sensor system.

To ensure your practice is at the cutting edge of the profession, make sure you visit stand B42 at the Dentistry Show 2015.

Call 0800 169 9692 or visit www.carestreamdental.co.uk

THE DENTAL DIRECTORY AT THE DENTISTRY SHOW

The Dental Directory, your dedicated full-service dental dealer, will be exhibiting at this year's Dentistry Show.

Providing you with impartial and unbiased advice on a range of products from cabinetry to consumables. As well as impeccable customer service and free next day delivery on its catalogue of over 27,000 product lines.

The Dental Directory really is your one-stop-shop.

Why not meet The Dental Directory Team on Stand J62 and let them help you make savings.

Trust... The Dental Directory

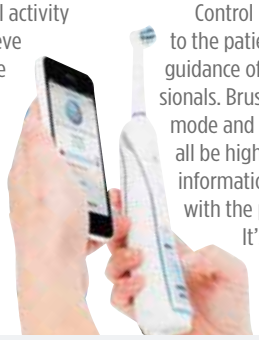
For more information, contact The Dental Directory on 0800 585 586 or visit www.dental-directory.co.uk

TRACK CALCULUS NOT CALORIES

Chances are that many of your patients started the new year with good intentions to lose a few pounds.

Well, rather than tracking calories, why not encourage them to track their oral hygiene? Monitoring their actual activity versus what they believe they're doing might be the wake up call they need to change their oral hygiene habits for good.

Oral-B's new SmartSeries electric toothbrush can help patients to take ownership of their own oral health. This ingenious device allows dental professionals to programme patients' brushing routines onto their mobile to ensure they follow professional guidance between appointments.



Control is firmly passed to the patient, but under the guidance of dental professionals. Brushing duration, mode and problem zones can all be highlighted and the information easily retrieved with the patient's consent. It's like having 'Big Brother' in the bathroom!

STAIN-RESISTANT

'Whiter teeth' is probably the most common request made by patients.

The polymer included within Oral-B Pro-Expert toothpaste, called sodium hexametaphosphate, is proven to help give that all important winning smile by reducing extrinsic staining. It works by combining both stain-prevention and stain-removal mechanisms.

Due to its strong affinity for the calcium hydroxyapatite contained in tooth enamel, sodium hexametaphosphate significantly influences the binding properties of the chromogens responsible for stains.

By disrupting the pellicle it is able to remove extrinsic staining and its ability to retain on tooth surfaces prevents new extrinsic stains forming, providing up to 96 per cent reduction in staining within two weeks versus baseline.

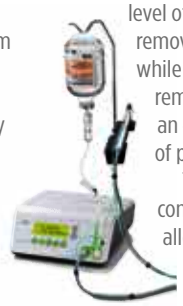
TWO SIMPLE STEPS TO MAKE YOUR WATER SAFE

schülke watersafe completely removes biofilm in DUWLs and then provides continual protection against biofilm reforming.

Stage one is a unique, one-off procedure to completely eliminate viable bacteria and reduce biofilm coverage by 100 per cent in one hour, using the schülke watersafe Starter Kit. Stage two gives continuous protection against biofilm reforming. schülke watersafe Cleaning Solution is added to the clean water bottle and remains in the system without the need to empty the bottle at night or weekends.

For further information, contact Allan Wright on 07976 513 439, or visit www.schulke.co.uk

SURGICAL INNOVATIONS FROM W&H



W&H gives you the most effective tools for maximum precision in oral surgical procedures in the fields of implantology, microsurgery and small-bone surgery.

W&H offers a high quality, technologically advanced and easy to operate surgical range, guaranteeing longer working without fatigue, thanks to improved design and ergonomics. With the innovative Piezomed, W&H places all the advantages of state-of-the-art ultrasound technology at the surgeon's fingertips facilitating the highest level of accuracy when removing bone substance, while surrounding soft tissue remains intact, making it an efficient and safe way of providing treatment.

The WS-91 high speed contra-angle handpiece allows considerably improved access to the molars and a better view of the treatment site even in patients with smaller mouths.

Contact W&H on 01727 874 990, email office.uk@wh.com or visit www.wh.com

FREE MI VARNISH SAMPLE

Visit GC UK's Facebook page to receive your free sample of MI Varnish and learn more about this exciting product.

Remaining on the teeth longer and containing high levels of fluoride, phosphate and calcium, GC's MI Varnish with RECALDENT (CPP-ACP) is ideal for patients at risk of hypersensitivity.

MI Varnish enhances enamel acid resistance and boosts salivary fluoride levels. It remains on the teeth longer than other fluoride varnishes and contains high levels of calcium, phosphate and fluoride. The calcium and phosphate boost the benefits of the fluoride by making it more bio-available.

The difference is the RECALDENT (CPP-ACP), which is a special milk-derived protein that strengthens teeth by releasing calcium, phosphate and fluoride.

For further information, please contact GC UK Ltd on 01908 218 999, e-mail info@gcukltd.co.uk or visit www.gceurope.com

THE DENTAL DIRECTORY AT THE SCOTTISH DENTAL SHOW

Visit The Dental Directory on stand H3 and find out how you could save your practice time and money when purchasing essential items needed to run a successful practice.

With more than 27,000 product lines, fantastic service, great prices and a PriceMatch Guarantee* why would their customers shop elsewhere? During the whole of 2014 their average order fulfilment rate was 99 per cent and, with guaranteed free delivery, The Dental Directory can provide a practice with the right product, at the right price, at the right time.

Call 0800 585 586, or visit www.dental-directory.co.uk
**PriceMatch guarantee applies to any nationally advertised published price, from any dental dealer on all identical consumables, sundries and materials.*

TURN YOUR VISION INTO REALITY

Whether you're simply looking for inspiration or would like to view the range of dental solutions available for your refurbishment project, you should visit A-dec at its Scottish showroom.

At the showroom you will find the complete spectrum of fully integrated, high-quality dental chairs, award-winning, innovative dental lights and ergonomic cabinetry solutions. You'll also be introduced to our A-dec difference display which shows the various high-quality A-dec parts that go into every package. A-dec's design and engineering is often imitated, but never duplicated.

You could spend more than 26,565 hours with your dental chair throughout your career so it needs to work for you and your dental team.

Why not visit us at our Livingston showroom (just 15 minutes from Edinburgh airport)?

For more information, call, 0800 233 285, email info@a-dec.co.uk or visit www.a-dec.co.uk

FASTER, MORE AFFORDABLE TREATMENT

Patients in Europe can now immediately receive an affordable, pro-quality oral appliance (OA) to alleviate symptoms of problem snoring and obstructive sleep apnoea (OSA). BluePro from BlueSom can be fitted quickly by trained dentists without the high cost and delay associated with lab-made appliances.

The first-line treatment for severe OSA is continuous positive airway pressure (CPAP) which is often limited by poor patient adherence. Good quality custom-made OAs fitted by dentists are often unaffordable for many patients and typically involve a delay of several weeks between diagnosis and treatment.

BluePro an be fitted immediately by heating in boiling water and taking a direct impression of the teeth.

BluePro is available to health professionals at www.bluepro.pro/en

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A1042 Woodpecker III Apex Locator

- Clear bright LCD
- Different colour indication of the file trajectory
- Automatic calibrating ensures the measurements are accurate
- Based on advanced multiple frequency network impedance measurement technology
- The accessories can be autoclaved avoiding cross infection risks
- The battery is rechargeable
- Folds and is easy to adjust the visual angle.

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C1005 Woodpecker Lux E Curing Light

- Three working modes: Full, Ramping, Pulse.
- Time setting: 5s, 10s, 15s, 20s.
- Large capacity battery. A full charge can be used for more than 400 times continuously with 10s working time mode.
- Low standby power consumption with forty days standby time.
- Constant light intensity.
- Wireless.
- Power input - AC100V to 240V 50Hz/60Hz
- Light output - 1000mW/cm -1200mW/cm
- Net weight - 147g
- Dimensions - 260mm x 40mm x 50mm

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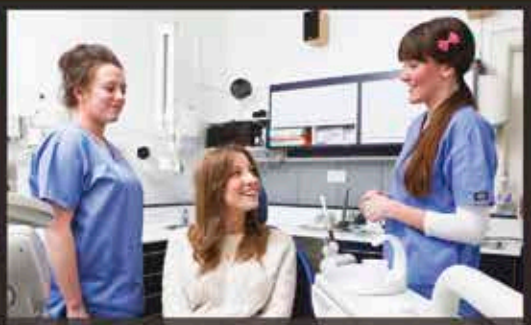
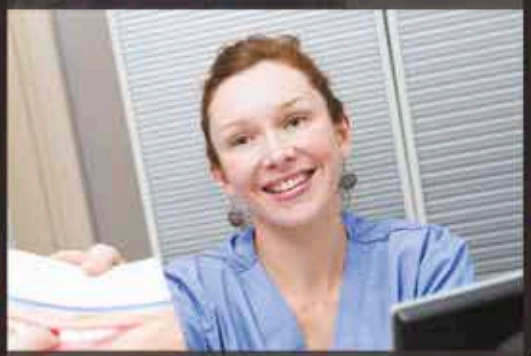


Conversion management

Administration support

Training support



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