

Send your letters to the Editor, British Dental Journal, 64 Wimpole Street, London W1G 8YS E-mail bdj@bda.org
Priority will be given to letters less than 500 words long. Authors must sign the letter, which may be edited for reasons of space.



Standard protocols

Sir, this letter is with reference to articles published in the *BDJ*, namely:

Bisphosphonate induced osteonecrosis of the jaws (*BDJ* 2007; 203: 87-89)

Symptoms of bisphosphonates associated osteonecrosis of the jaws (*BDJ* 2007; 203: 91-92)

Oral bisphosphonate associated osteonecrosis of jaws – three case reports (*BDJ* 2007; 203: 93-97)

It is very interesting to note the increasing number of patients presenting with osteonecrosis of the jaws secondary to bisphosphonate therapy. Initially it was thought that intravenous bisphosphonates were the culprits in causing BONJ (bisphosphonate induced osteonecrosis of the jaws) but evidence from clinical data now shows that even oral bisphosphonates, most commonly alendronic acid (Fosamax) can cause BONJ.

In the last year, at the department of maxillofacial surgery in Morrision Hospital Swansea, we have treated 18 patients who presented with BONJ. Four out of the 18 patients were on alendronic acid for the treatment of osteoporosis; two out of the four had spontaneous necrosis with no history of dental treatment! The remaining 14 patients had intravenous Zoledronic acid for the treatment of cancer of the breast/prostate.

There has been a considerable awareness about BONJ in dental practice and I have noted that an increasing number of dentists query whether to extract teeth in practice at all for a patient who is taking bisphosphonates. Maxillofacial Senior House Officer on-call personnel have found that over the last six months this has been quite a familiar query from general dental practitioners.

In my opinion, a proper consensus should be formulated for dental treatment to patients who are about to commence bisphosphonates and for those who are already taking bisphosphonates. Although dental assessment prior to the commencement of bisphosphonates has been suggested, dental disease is pandemic and can be a considerable cause of morbidity

to a patient when they have dental pain, need a tooth extracted and are taking bisphosphonates. The dentist then is in a dilemma as to whether or not to refer the patient to the hospital (knowing the waiting lists in the NHS) with a possible risk of BONJ.

Similarly clear guidelines need to be drawn up to treat patients on bisphosphonate therapy. A study and statistical figures are probably needed to do a risk assessment of these patients and those already with BONJ need referral to a maxillofacial surgeon. The half life of these drugs is greater than ten years, therefore patients on these drugs shouldn't be considered a complete taboo for minor surgical work, eg single tooth extraction in practice, although the risk of BONJ does exist. Therefore if there were some standard protocols to deal with the matter that would be ideal and safe.

G. Kini

Swansea

DOI: 10.1038/bdj.2007.955

Source of concern

Sir, the increased use of computer assisted designing and manufacturing (CAD/CAM) in dentistry brings an urgent need to introduce internationally recognised standards.

In a recent article (*BDJ* 2007; 202: 731-735) a claim is made for well known branded ceramic copings with 'a final fit of 25 microns plus/minus 12 microns is reliably achievable' utilising optical scanning methods.

The rapid growth of new technology in dentistry is being accompanied by some highly contentious claims. New dental technology and materials always come at a price but the advertised benefits are rarely supported with verifiable scientific evidence.

For example are the results from optical and contact scanning measuring systems the same? Does the 'final fit' relate to the fit on the master model or the actual tooth? How are the clinical data collected in the first place – for example by intraoral scanning or impression/master model scanning?

Do all impression materials and master models give precise clinical replicas?

These are extremely important questions that can only be answered with valid data gained from verifiable science-based analyses. The fact that none presently exist should be a source of concern for all who wish to know the cost/benefits of CAD/CAM technology.

N. J. Knott

Chippenham

The authors of the article, K. D. P. Barnfather and P. A. Brunton, respond: We read with interest and thank you for your comments regarding the use of computer assisted designing and manufacturing (CAD/CAM) in dentistry and its application within the context of our article.¹

May we also point out that the purpose of the paper was a clinical case report to assess the performance and clinical aspects of cross-arch restoration using specifically the Lava™ crown and bridge system. The focus of the queries raised in this correspondence appear to be aimed at the CAD/CAM processes, which have been researched and developed by each independent manufacturer, for example Noble Biocare, Sweden (Procera, contact scanning) and 3M ESPE, Germany (Lava, optical scanning).

Our report provides a brief overview of the alternate systems, citing related published articles, some of which detail data relating to CAD/CAM. It is not an investigation specifically into the intricacies and exact details of differing CAD/CAM methods in dentistry and as a result the reader is advised to address any technical concerns with each system manufacturer.

With respect to the Lava™ system, data have been published both related to the final fit of the coping and finished restoration both with the laboratory on the master model and clinically upon cementation to the prepared tooth, using data from intra-oral scanning and model scanning.²⁻⁷ Again, a detailed consideration of every impression system and every laboratory casting procedure currently available today is clearly beyond

the scope of this report. Errors may be incurred at each step of the impression: disinfection, transit to laboratory, casting, and subsequent crown manufacturing process, regardless of crown type (metal, metal-ceramic, CAD/CAM all-ceramic). These variables exist for all similar systems.

There has been a vast amount of published research within this field since the emergence of the early Procera systems described by Andersson et al.,⁸ specifically related to the Lava system, this includes: five year clinical performance data of single unit crowns and bridges, clinical aspects of bridge connector dimensions, laboratory analysis of both standard (and coloured) ZrO₂ specimens with respect to mechanical characteristics, long-term stability both intra-orally and in simulated environments, fracture strength, surface finishing, cement adhesion, bond strength, aesthetics, marginal fit of single unit crowns and multi-unit bridges, marginal fit and microleakage in a simulated environment and an investigation of milling time and related accuracy of marginal fit are but a few key aspects of research presented at International Association for Dental Research meetings (IADR 2000, 2001, 2002, 2003, 2004, 2005, 2006).⁹

It is disappointing to read in the correspondence the view that no valid data exist when it is clear that an abundance of verifiable scientific research has been undertaken and published to support the clinical utility of the Lava system with excellent outcomes.

1. Barnfather K D P, Brunton P. Restoration of the upper dental arch using Lava™ all-ceramic crown and bridgework. *Br Dent J* 2007; 202: 731-735.
2. Reich S, Wichmann M, Nkenke E, Proeschel P. Clinical fit of all-ceramic three-unit fixed partial dentures, generated with three different CAD/CAM systems. *Eur J Oral Sci* 2005; 113: 174-179.
3. Holmes J R, Bayne S C, Holland G A, Sulik W D. Considerations in measurement of marginal fit. *J Prosthet Dent* 1989; 62: 405-408.
4. Piwowarczyk H, Lauer C. Determining the marginal fit of CAD/CAM bridge frameworks. *Pan European Fed Conf 2006 (PEF; CED # 0254)*.
5. Beuer T, Fischer K, Erdelt J et al. An in vitro study of the marginal fit of Lava restorations. *Industrial Report (2006), IADR (2005)*.
6. Sorenson J A. The Lava system for CAD/CAM production of high-strength precision fixed prosthodontics. *Quint Dent Tech* 2003; 26: 57-67.
7. Hertlein G, Hoscheler S, Frank S. Marginal fit of CAD/CAM manufactured all-ceramic zirconia prosthesis. *J Dent Res* 2001; 80: 492.
8. Andersson M, Oden A. A new all-ceramic crown. A dense sintered, high purity alumina coping with porcelain. *Acta Odontol Scand* 1993; 51: 59-64.
9. Lava™ 3M ESPE, *Clinical Guidelines, Scientific Facts (Marginal Fit)*. www.3MESPE.com. 2007.

DOI: 10.1038/bdj.2007.956

Hookah hazards

Sir, hookahs are smoked widely in the Arab world. Many people think that

hookahs are less dangerous than cigarettes as the tobacco is filtered through water, but while a cigarette lasts for a few minutes, a hookah lasts for hours. The person smoking the hookah may inhale a hundred times in a session lasting 30-60 minutes. The rising popularity of the hookah is partly due to the unfounded assumptions of safety and misleading commercial marketing. In cities across the UK, especially London, hookah bars have become popular among young immigrant Asian communities and among others as well. The hookah is complemented by *shisha*, a special blend of tobacco and molasses, and the bars serve hookahs with flavours like apple, peach, mango, mint and strawberry.¹ Such flavours might explain the hookah's popularity among women.

The hookah makes use of a large quantity of pure shredded tobacco, making smoking a hookah for 30-60 minutes equivalent to smoking a packet of cigarettes. The tobacco burns at a lower temperature in water pipes which makes it easier to inhale and the smoke penetrates deeper into the respiratory tract, thus causing more damage than a cigarette. The water does not filter the toxins as many people think, so those who smoke hookahs are exposed to larger amounts of nicotine, carbon monoxide and certain other toxins.¹ The tar produced when the tobacco is burnt contains carcinogens, does not dissolve and together with other tobacco particles affects the lungs directly. The smoke produced while smoking the hookah also gets deposited in the lungs. The amount of cellular chromosomal damage is the same¹ whether a hookah or a cigarette is smoked and so is the prevalence of cancer. Since the hookah habit is becoming widely prevalent in eastern countries² and now spreading to the west, proper health education is needed in helping people kick this habit. It should be borne in mind that smoking kills with or without gurgling water.

Meghashyam Bhat
Manipal

1. Gatrad R, Gatrad A, Sheikh A. Hookah smoking. *Br Med J* 2007; 335: 20.
2. Maziak W, Ward K D, Afifi Soweid R A, Eissenberg T. Tobacco smoking using a water pipe: a re-emerging strain in a global epidemic. *Tob Control* 2004; 13: 327-333.

DOI: 10.1038/bdj.2007.957

Gammon's Law

Sir, author S. Hudson in his interesting opinion paper *A fistful of UDAs (BDJ 2007; 203: 71-73)* is effectively presenting our current exposure to Gammon's

Law of Bureaucratic Displacement, a development from Parkinson's Law, which Milton Freedman acknowledged and used.

Dr Max Gammon (still very much alive) formulated his law some time ago and it has been widely used stating as it does that: 'In a bureaucratic system, increase in expenditure will be matched by fall in production'.

M. Bishop
Hertford

DOI: 10.1038/bdj.2007.958

Poor policy decisions

Sir, I found the editorial on debt collecting (*BDJ* 2007; 203: 61) an interesting read. In summary, the editorial pointed out that there is a growing popularity of the notion that newly qualified dentists should give back more time and commitment to the NHS, since they were trained at great expense by the Government. This notion was supported by Keith Barron MP (chairman of the Common's Health Select Committee), Joyce Robbins (co-director of Patient Concern) and some media groups.

I can only respond by making three comments.

Firstly, I agree that the training of dental students is mainly funded by the Government. However, dental students do spend a minimum of three years of their training, examining and treating patients in a wide variety of dental disciplines. Therefore, any concern about Government expenditure on dental students' training is more than repaid by the students providing a clinical service, under supervised care, to patients who require dental treatment.

Secondly, it is difficult to enforce newly qualified dentists to commit to the NHS (primary care), as this notion could be in breach of restriction of trade, which is nowadays disallowed. As long as dentists are able to provide a service to the interest of the public, it is irrelevant under which system they can work in. It is wholly unreasonable to enforce newly qualified dentists to sign up to NHS work, as dentists should be free to choose under which conditions to work in.

Thirdly, media groups are free to report and provide opinions on issues that are in the public interest. However, in my opinion, some media groups act irresponsibly and those that do are poorly regulated. I find this surprising, considering the powerful persuasive influence the media can have on society and the nation.

The perilous state of NHS dentistry is due to poor policy decisions and planning by top and senior Government officials and the Department of Health. Unfortunately, there was insignificant consultation between the dental profession and Government officials/bodies that resulted in unilateral thinking and implementation of change in dentistry.

I agree with the editor that the only debt the dental profession owes is the provision of duty and care to its patients with relevant needs.

S. Shah
Epping

DOI: 10.1038/bdj.2007.959

Unnecessary extractions

Sir, facial pains and headaches of presumed dental origin sometimes prompt the removal of teeth. International Headache Society (IHS) clinical diagnostic criteria for 'headache or facial pain attributed to disorders of the ... teeth' are available¹ but whether these are sufficient to exclude primary headache syndromes, and hence avoid unnecessary dental extractions, remains questionable.

A previously healthy 63-year-old man complained of stereotyped episodes of severe facial pain, exclusively left-sided, in both supra- and infraorbital distribution, occurring in regular attacks over a period of several months. Initial referral was to an oral surgeon who removed two teeth from the left maxilla but without improvement in symptoms. A diagnosis of trigeminal neuralgia was then considered because of the possible identification of trigger points, but neither carbamazepine nor gabapentin helped.

Referred to the neurology clinic, additional history was elicited of associated ipsilateral eye watering and nasal blockage during the attacks of pain, which lasted up to one hour and often woke the patient from sleep. On examination, there were no abnormal neurological signs. A clinical diagnosis of cluster headache was made, based on IHS diagnostic criteria for headache syndromes.¹

Patients with facial pain often present to dental practitioners and oral surgeons. Although facial pain may indeed be of dental origin, it is nonetheless recognised that primary headache and facial pain disorders may also sometimes present as dental pain, with the risk of incorrect diagnosis and inappropriate treatment.^{2,3} Trigeminal neuralgia is probably the most common culprit,

but atypical (idiopathic) facial pain also enters the differential diagnosis; both conditions are familiar to dental practitioners in both primary and secondary care.⁴ Perhaps less familiar is the fact that cluster headache, previously known as migrainous neuralgia, may also present with facial pain in the absence of head pain.^{4,5} The pathogenesis of cluster headache is believed to be ipsilateral hypothalamic activation,⁶ and hence this disorder is characterised as a neurovascular headache and categorised with the trigeminal autonomic cephalalgias.¹ Onset of cluster headache after dental extraction has also been reported, but the mechanism is not understood.⁷

The IHS International Classification of Headache Disorders second edition (ICHD2) lists 'headache or facial pain attributed to disorders of the ... teeth' amongst the secondary headache syndromes (Section 11.6; reference 1, p118). One of the criteria for this diagnosis (criterion D) is retrospective, viz. 'headache resolves within three months after successful treatment of the disorder'. There is no mention of the differential diagnosis with cluster headache or trigeminal neuralgia.

It may be desirable to revise the ICHD2 criteria for 'headache or facial pain attributed to disorders of the ... teeth' to make them prospective, rather than retrospective, to avoid the occurrence, as in this patient, of dental extractions which fail to ameliorate symptoms. An addition of an explicit comment about the need to consider cluster headache and trigeminal neuralgia in the differential diagnosis of presumed headache or facial pain attributed to disorders of the teeth would also be appropriate.

A. J. Larner
Liverpool

1. International Headache Society Classification Subcommittee. The international classification of headache disorders, 2nd edition. *Cephalalgia* 2004; **24**(suppl 1): 1-160.
2. Canavan D. A dental perspective on headache. *J Ir Dent Assoc* 2004; **50**: 164-166.
3. Hoffert M J. Headaches that masquerade as dental pain. *J Mass Dent Soc* 1995; **44**: 33-35.
4. Zakrzewska J M. Facial pain: neurological and non-neurological. *J Neurol Neurosurg Psychiatry* 2002; **72**(suppl II): ii27-ii32.
5. Gross S G. Dental presentations of cluster headaches. *Curr Pain Headache Rep* 2006; **10**: 126-129.
6. May A, Bahra A, Büchel C, Frackowiak R S, Goadsby P J. Hypothalamic activation in cluster headache attacks. *Lancet* 1998; **352**: 275-278.
7. Sörös P, Frese A, Husstedt I W, Evers S. Cluster headache after dental extraction: implications for the pathogenesis of cluster headache? *Cephalalgia* 2001; **21**: 619-622.

DOI: 10.1038/bdj.2007.960