

SEALANT COSTS

Sir, I was interested to read the practice paper by Dr Bonetti on *Evidence not practised: The underutilisation of preventive fissure sealants*.¹ In the recently published clinical guideline by the Scottish Intercollegiate Guidelines Network (SIGN),² it has been suggested that resin-based PFSs should be applied to the permanent molars of all children as early after eruption as possible. In other words, applications should usually take place between the ages of 6–7 years for first permanent molars and 11–12 years for second permanent molars.

In 2012/13, approximately 30% of primary 7 children (mean age 11.5 years) in Scotland received PFSs.³ In Scotland, the current cost of application of PFS to unfilled permanent molar teeth within two years of their eruption is £8.15 per tooth.⁴ To increase the uptake of PFSs in first permanent molars from 30% to 60% in Scottish children aged 6–7 years, SIGN estimated that the incremental cost would be over £1 million. Similarly, over £1 million would be required to double the uptake of PFSs in second permanent molars in Scottish children aged 11–12 years.²

It was not possible to segregate visits incorporating treatment with visits representing routine examinations in

the above estimated costs; therefore, the total cost of service provision in Scotland may have been underestimated. However, potential savings from restorations avoided are also excluded.²

Implementation of the SIGN guideline is the responsibility of each NHS board in Scotland. In NHS Lanarkshire, the NHS board where I have been working, mechanisms have already been in place to review the care provided against the guideline recommendations. This includes the appointment of an executive director, a clinical lead and a managerial lead.

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Fig. 1 Toothbrush with charcoal bristles

the coating did not have any antimicrobial effect against residual bacteria present on the toothbrush head.¹ Turner *et al.* studied the bacterial contamination of toothbrushes which were coated with chlorhexidine.² The results of this study showed that there was no difference in the bacterial contamination of toothbrushes with or without chlorhexidine.² Yaacob and Park performed a study on local Malaysians who were applying charcoal and salt with their forefinger to clean the teeth and found that all the patients had distinct forms of abrasion on the labial surfaces of the teeth.³ There have been references in ancient literature of Romans and English adding powdered charcoal to toothpastes for the purpose of decreasing bad breath.⁴ As evidenced by the studies performed,^{1,2} in today's era of evidence-based dentistry, products and technologies are driven by scientific evidence and not by ancient anecdotal literature. Dentists and the general public should be cautious while advising and choosing their toothbrushes and refrain from using those which still have not been proven scientifically.

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OMFS

Work time restrictions

Sir, a number of countries have implemented restrictions in the number of hours staff are permitted to work. The European Union Working Time Directive (EWTD), fully implemented in the UK in 2009, set a limit on maximum hours of

of this alkaloid and produce pilocarpine from callus cell lines in order to save this endangered species.¹ New methods of detection of pilocarpine are being employed. Alexandra Sawaya and Ilka Abreu used HPLC-ESI-MS/MS (high-performance liquid chromatography–tandem mass spectrometry) method to detect pilocarpine in paste that is left over after industrial extraction of pilocarpine to permit additional studies of biosynthetic pathway.³ Genetic breeding programmes have been proposed by Moura and Pinto.⁴

Jaborandi, the only known source of pilocarpine, is at the verge of extinction due to human impact. Overharvesting has placed many medicinal species at risk of extinction. We must safeguard our remaining medicinal treasures in the wild for future generations.

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ORAL HEALTH

Charcoal brushes

Sir, in certain South-East Asian countries, charcoal has been added to the bristles of toothbrushes, the bristles of which are black in colour (Fig. 1). Manufacturers of these toothbrushes claim that the blending of charcoal into nylon bristles can reduce halitosis (as charcoal absorbs any bad odour), reduce plaque and also kill bacteria that may develop in the bristles during storage, thus reducing the bacterial contamination of toothbrushes. However, according to our knowledge, these claims are not substantiated by any scientific studies/evidence. These brushes are used and are easily available in Hong Kong, Malaysia, Singapore and worldwide via the Internet.

Al-Ahmad *et al.* conducted a study wherein toothbrush heads were coated with silver to test for its antimicrobial effects but

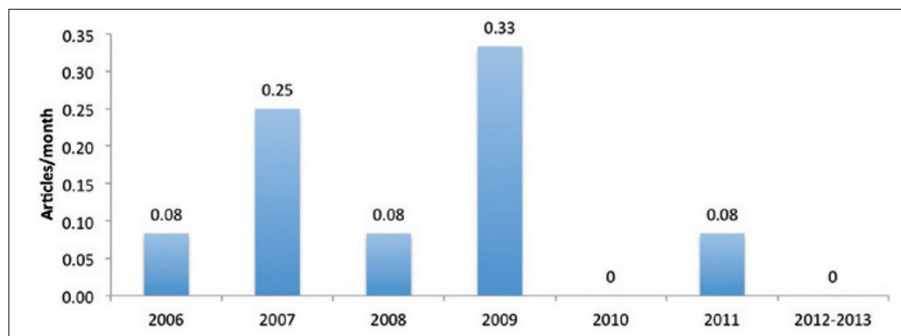


Fig. 1 Rate of article publication in four journals combined between 2006 and 2013

duty for doctors at 48 hours per week.¹ The Accreditation Council for Graduate Medical Education in the US implemented the duty hours policy, a similar restriction on maximum hours worked, set at 80 per week, which took effect in 2003.² We aimed to establish the extent of research on the impact of work time restrictions (WTRs) in the oral and maxillofacial surgery literature.

We performed an electronic search of the *British Journal of Oral and Maxillofacial Surgery* (BJOMS), the *Journal of Cranio-Maxillofacial Surgery* (JCMFS), the *Journal of Oral and Maxillofacial Surgery* (JOMS) and the *International Journal of Oral and Maxillofacial Surgery* (IJOMS). Journal websites were searched for all publications containing the terms 'working time directive' or 'duty hours policy' in the abstract, title or keywords from inception to February 2014.

Of the 42,788 articles archived in BJOMS, JCMFS, JOMS and IJOMS, only 10 (0.02%) addressed WTRs. The earliest article was published in 2006. Between 2006 and 2009, 0.19 articles/month were published on the topic. The highest rate of publication occurred in 2009 with 0.33 articles/month published (Fig. 1). Since 2009 there has only been one article published (in 2011) on the topic.

In light of the considerable impact WTRs have on surgical practice and postgraduate training,³ only a very small proportion (0.02%) of articles in general OMFS journals have discussed this issue. There is therefore a need for more original research exploring the impact of WTRs on OMFS training and practice. A large US study found a significant decrease in operative experience of general surgery trainees after the implementation of WTRs when compared to before its implementation.³ Concerns have also been raised in the UK about the effect of WTRs on exposure to teaching⁴ and on the need for surgical cross-cover to meet on-call requirements.⁵

The debate on WTRs has largely centred on general surgery; however, the effects on OMFS should be studied in greater

depth. Subsequent studies would inform the specialty ensuring surgical training, alongside the time restrictions, maximises trainee development without compromising patient safety.

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SHORT-TERM ORTHODONTICS

History puts it straight

Sir, in the debate on short-term orthodontics (STO) (*BDJ* 2014; **216**: 386–389), going back to the roots of the argument may lead to a clearer understanding as in the 'great extraction debate' of 1908 between Edward Angle, a prosthodontist famous for his early occlusal analysis and Kelvin Case, an orthodontic specialist.^{1,2} Angle felt that all 32 teeth should be aligned into a wider dental arc, without extraction, to give the best occlusal and facial aesthetic result. Case, for whatever reason, felt that the inherited dental arch form should be respected and thus to preserve this, extraction of teeth was necessary in the crowded arch, to produce long term stability and worthwhile change. At the debate's conclusion it was judged that Dr Angle had won and the non-extraction approach was triumphant. The Angle school thus flourished until his death at the end of the 1920s.

One of Angle's pupils, Dr Charles Tweed, took the expansionist philosophy back to his

practice and used it in the first years of his practising life to correct malocclusion and particularly crowding. You may well say the STO approach, since that is what it was.

Tweed kept meticulous records and found that relapse, sometimes total, was the common long-term outcome. On review, he decided to re-treat the same patients, extracting premolars in crowded cases. He respected the presenting arch form and inter-canine width, particularly controlling the spatial position of the lower incisors, preventing labial movement of this group of teeth. All these factors are currently ignored by STO.

Tweed thus built the impressive database of long-term results, initially comparing and contrasting an expansionist *versus* an extractionist approach, each former patient thus being both control and experimental subject. This has become the Tweed Foundation in Tucson, Arizona and provides the evidence to the veracity of extraction *versus* non-extraction treatment. The evidence was unequivocal, non-extraction treatment, of all but minor crowding, relapses unless held for life by retaining devices. Life for adult patients, the focus of STO, means up to 50 years. Is this a reasonable proposition for most patients, who will pay for this lifelong retention, and what are the costs?

STO and other current non-extractionist approaches, such as dental aligners, Damon philosophy, the six-month smile etc are, like the Angle approach, expansionist treatments and as Tweed so elegantly demonstrated, are doomed to relapse without permanent arch retention. To receive informed consent patients should be aware of the length of time needed to retain these unstable treatment approaches and also the costs, which are not inconsiderable. Are all of today's patients informed of all these issues at the outset?

There is increasing litigation following expansionist treatment modalities, as relapse and instability become apparent. This of course is regrettable. Within the legal process for plaintiffs, powerful arguments are available to bring their legal action to successful outcome, the above being just one source of evidence. Perhaps this leads to the next debate for the *BDJ*: The need for orthodontic retention in contemporary practice.

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