Letters to the editor

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Carbon emissions

Dentistry in a sustainable NHS

Sir, following the Climate Change Act 2008, the UK is to cut its carbon emissions by 80% by 2050 and with the NHS being the largest carbon emitter in the UK, we hold an important role in making this achievable.

A report published in January 2016 on 2015 data shows there has been an 11% reduction in carbon emissions between 2007 and 2015.¹

The Centre for Sustainable Healthcare, a registered charity established in 2008, released four principles of sustainable dentistry – prevention, lean pathways, low carbon alternatives, and patient empowerment and self-care.

These principles provide a guide to reducing carbon emissions, while ensuring that clinical care pathways are providing high quality care which is both economically and environmentally sustainable.²

Examples of changes that can be made include using biodegradable cups, planning treatments to minimise travel or placing low energy bulbs throughout the practice.

In the dental world, practices, although commissioned by the NHS, also run as independent businesses. This raises the interesting question of how likely practices (both private and NHS) are to adopt similar measures to reduce their carbon footprint.

Obviously, these principles cannot be enforced with inspections or penalties.

In general it may not even be feasible for the NHS to enforce policies not directly related to patient health on what are essentially private businesses.

Perhaps in the future the policy may be to refuse contracts to practices that do not meet certain sustainability criteria, but this will bring its own issues as some areas of the UK are already facing difficulties in access to dental care.

This could mean that the NHS may not be in a position to be too selective about which practices to which it assigns contracts. If dental surgeries are left to implement sustainability measures voluntarily, can we expect them to do so?

B. Cheema, by email

1. The Stationery Office. Climate Change Act 2008. Available at http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf (accessed on 8 January 2019).
2. Centre for Sustainable Healthcare. Sustainability Series: 4 principles of sustainable dentistry. Available at <https://sustainablehealthcare.org.uk/blog/sustainability-series-4-principles-sustainable-dentistry> (accessed on 8 January 2019).

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Quality of research

Improper evaluation of the quality of trials of retention rates

Sir, based on 11 trials, Bagherian and Shirazi¹ concluded 'flowable composite as fissure sealing material can slightly increase the retention of sealants compared with conventional resin-based sealants'.

We challenge this conclusion based on inadequate evaluation of trial quality. The risk of bias was assessed using a modified Jadad scoring system – asking four additional questions (for a total of nine) – which is still grossly incomplete.²

Moreover, a low risk of bias was concluded for any trial which answered yes to only seven of these questions, which was attained by just four of the 11 trials. Two of these trials^{3,4} received credit for proper randomisation; two more^{5,6} were rated low risk of bias despite improper randomisation.

But how can randomisation be demonstrated to be proper when there are no details whatsoever, beyond using a 'contingency number table' (to randomise by tooth instead of by patient, itself an error)³ and 'computer-generated randomisation'?⁴

There are many more improper randomisation methods than proper ones,⁷ so we cannot just assume proper randomisation, without which selection bias becomes an issue.

This can easily be ruled out with the Berger-Exner test,⁸ but none of the trial reports bothered to present this analysis. An inability to determine how randomisation was conducted, coupled with no credible claim that there was no selection bias, means that selection bias cannot be ruled out. The very real possibility of bias in and of itself carries a high risk of (selection) bias, tautologically.

The Jadad score, modified or otherwise, represents an appalling low standard that even the most flawed trials can meet. Its use benefits researchers, who can cut corners and still have their trials praised as rigorous, and also meta analysts, who claim to have sufficient evidence (flawed though it may be) to draw conclusions that may be of interest to both medical journals and consumers of medical research.

However, this apparent symbiosis is embedded within a veiled zero-sum game, because the benefits to these two parties are offset by the harm accruing to patients who are misled by flawed evidence.

Flowable composite may increase the retention of sealants compared with conventional resin-based sealants, but there is no way to conclude that, or anything else of interest to patients, on the basis of these 11 trials.

In fact, about all we can conclude is that we need better studies, and that we need meta analysts to be more diligent in assessing trial quality.

C. E. Jones and V. W. Berger, by email

1. Bagherian A, Shirazi A S. Flowable Composite as Fissure Sealing Material? A Systematic Review and Meta-Analysis. *Br Dent J* 2018; **224**: 92–97
2. Berger V W. Is the Jadad score the proper evaluation of trials? *J Rheumatol* Aug 2006; **33**: 1710–1711.