Letters to the Editor

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.

LETTERS

BOTTOMS UP

Sir, whilst undertaking a survey-based research project as part of an MSc in general dental practice, I offered participants the opportunity to win a case of wine as a gesture of thanks for their cooperation.

The final question in the survey was, therefore, regarding the participants' preference for red or white wine. Of those that responded to the question ($n = 416$), 66.35% indicated a preference for red wine.

It is reassuring to see that the cardiac health message is being so widely embraced by the members of our profession!

I am grateful to those colleagues who participated in the survey, for their support and encouragement.

T. Fox
Wiltshire

DOI: 10.1038/sj.bdj.2008.466

ENDODONTIC INTERVENTION

Sir, timing, they say, is everything. The paper by Tickle *et al.* (BDJ 2008; 204: E8) which reviews the outcome of 174 root canal fillings, appears just one month after the systematic review and meta analysis of 63 outcome studies of endodontic treatments published in the *International Endodontic Journal* by Ng *et al.* (IEJ 2008; 41: 6).

The criteria chosen for standard of treatment by Tickle *et al.* are those advised by the European Society for Endodontology, whilst the only criteria selected for the identification of the 16 reported failures are tooth loss or re-intervention.

I am sure that the authors of both of these papers were represented at the recent British Endodontic Society Spring Scientific Meeting where they

would have heard a presentation seeking to define 'evidence-based endodontics'. This requires that the most comprehensive clinical outcome data are placed within the context of clinical experience and of patient preference.

The systematic review uses weighted pooled success rates to analyse the weighted effect of each putative factor that could affect outcomes. It highlights other very important additional prognostic indicators for success besides the single one identified by Tickle *et al.* (*viz* the requirement that a root treated tooth is promptly and well restored). The first of these additional factors is recognition of the severity of any pre-operative chronic apical periodontitis. Others are related to the quality of treatment, especially the extension and adequacy of placement of obturating materials, both identified as significant determinants.

My own clinical experience of the treatment or re-treatment of some 25,000 root canals in the last 25 years leads me to believe that the great majority of endodontic interventions do indeed serve to relieve any symptoms of pulpitis and prevent acute apical periodontitis in the short term and that this is most likely to be successful where there is no pre-existing infection. However, clinical experience has also taught me that predictable success in the longer-term prevention and treatment of established chronic apical periodontitis is certainly technique sensitive, not specifically in terms of the details of protocols employed, but generally in terms of the satisfactory attainment of procedural goals; the very same goals identified both by the European Society for Endodontology, and also by analysis of causes of failure emerging from the Ng *et al.* systematic review of success rates.

Patient preference is for predictable long-term success.

Those readers who take from Tickle *et al.* the message that prompt restoration is the golden key to endodontic success, without proper consideration of additional, technique-sensitive determinants, may increase their tally of CPD points, but will also contribute to the expense incurred by patients requiring remedial treatment, and to the profits of the dental litigation industry which counts endodontic failure as one of its principal sources of income.

A. T. Hyatt
London

DOI: 10.1038/sj.bdj.2008.467

TOOTH SURVIVAL

Sir, I write regarding *The failure rate of NHS funded molar endodontic treatment delivered in general dental practice* by Tickle *et al.* (BDJ 2008; 204: E8).

This paper has a most misleading title by referring to failure of treatment, when what was actually assessed was tooth survival over an undefined period up to eight years. Out of 176 teeth, 16 were deemed failures: 15 of these were extracted.

Over the last 50 years success/failure of root canal treatment has been defined in terms of healing/non-healing of a periapical radiolucency, which has been a proxy measure for apical periodontitis. This was not assessed in the current study.

Most readers will focus on the conclusions, which, like the title, refer to failure rather than non-survival. No evidenced reasons are given as to why the teeth were lost, but given the non-survival was all in uncrowned teeth, the reason could have been related to tooth fracture.

Unsurprisingly, tooth fracture would not be related to the quality of the root canal filling. Based on this research it could be concluded that crowning a root filled tooth provides a very high chance of survival – certainly equal to implants.

The value of the research is much less than the title implies, and is at risk of undermining standards of patient care.

T. R. Pitt Ford

London

DOI: 10.1038/sj.bdj.2008.468

HIGHLIGHTING DEFICIENCIES

Sir, the results of the study by Tickle *et al.* (BDJ 2008; 204: E8) are not unexpected given the criteria chosen to define outcome. The European Society of Endodontology (1994) guidelines were used to categorise the quality of root fillings but, surprisingly, not the outcome. Instead, an unusual and unrecognised measurement was devised. It is also an oversimplification when a tooth that was still present and symptomless was categorised as a success. Such a tooth may, for example, be associated with a not easily detectable sinus tract. If extraction or root filling replacement is dependent on the patient experiencing recurrent and severe symptoms, then there must be failed cases wrongly categorised as successful because symptoms are tolerable or where the patient's preference or GDP's inclination and ability to perform endodontic retreatment decided against intervention.

No references were included to support the contention that the presence of radiolucencies is not diagnostic of active pathology. Nevertheless, especially if increased in size, their presence is certainly not indicative of health. In this era of heightened concern about the possible effects of oral disease on general health, such an assertion is irresponsible.

It is alarming that over one third of teeth had no, or had unreadable postoperative radiographs. Good record keeping and the production of high quality radiographs are basic requirements for clinical practice. Although the outcome of this group is similar to those that had radiographs, it is irrelevant, as outcome was not assessed radiographically.

There may be literature suggesting that the coronal restoration is more important than the radiographic appearance of

the root filling. However, there are also papers suggesting the opposite,¹⁻³ or that both factors are equally important.^{4,5} Recently, Chugal *et al.*⁶ reported that endodontic outcome is independent of the type of restoration but critically affected by the presence of radiographically detectable periapical pathosis. Unfortunately, this important prognostic indicator, reaffirmed by many,⁷⁻¹⁰ was ignored by Tickle *et al.* Chugal *et al.*⁶ also reported treatment selection bias in that teeth with preoperative apical periodontitis were less likely to be restored with a crown, another factor ignored by Tickle *et al.*

The characteristics of endodontic outcome studies have a significant influence on probability of success.¹¹ The only implication for such research studies as a result of Tickle *et al.* is to highlight the deficiencies of their study design. Whilst it was mentioned in the text that the study is preliminary in nature, this caveat is missing from the title. The addition of 'crude' after 'failure rate' would also be appropriate.

B. S. Chong

London

1. Ricucci D, Gröndahl K, Bergenholtz G. Periapical status of root-filled teeth exposed to the oral environment by loss of restoration or caries. *Oral Surg Oral Med Oral Pathol Radiol Endod* 2000; **90**: 354-359.
2. Siqueira J F Jr, Rôças I N, Alves F R, Campos L C. Periapical status related to the quality of coronal restorations and root canal fillings in a Brazilian population. *Oral Surg Oral Med Oral Pathol Radiol Endod* 2005; **100**: 369-374.
3. Tronstad L, Asbjørnsen K, Døving L, Pederson I, Eriksen H M. Influence of coronal restorations on the periapical health of endodontically treated teeth. *Endod Dent Traumatol* 2000; **16**: 218-221.
4. Hommez G M, Coppens C R, De Moor R J. Periapical health related to the quality of coronal restorations and root fillings. *Int Endod J* 2002; **35**: 680-689.
5. Kirkevang L L, Ørstavik D, Hørsted-Bindslev P, Wenzel A. Periapical status and quality of root fillings and coronal restorations in a Danish population. *Int Endod J* 2000; **33**: 509-515.
6. Chugal N M, Clive J M, Spångberg L S. Endodontic treatment outcome: effect of the permanent restoration. *Oral Surg Oral Med Oral Pathol Radiol Endod* 2007; **104**: 576-582.
7. Chugal N M, Clive J M, Spångberg L S. A prognostic model for assessment of the outcome of endodontic treatment: effect of biologic and treatment variables. *Oral Surg Oral Med Oral Pathol Radiol Endod* 2003; **96**: 81-90.
8. Chugal N M, Clive J M, Spångberg L S. Endodontic infection: some biologic and treatment factors associated with outcome. *Oral Surg Oral Med Oral Pathol Radiol Endod* 2003; **96**: 81-90.
9. de Cheigny C, Dao T T, Basrani B R, Marquis V *et al.* Treatment outcome in endodontics: The Toronto study – Phase 4: Initial treatment. *J Endod* 2008; **34**: 259-263.
10. Ng Y-L, Mann V, Rahbaran S, Lewsey J, Gulabivala K. Outcome of primary root canal treatment: systematic review of the literature – Part 2. Influence

of clinical factors. *Int Endod J* 2008; **41**: 6-31.

11. Ng Y-L, Mann V, Rahbaran S, Lewsey J, Gulabivala K. Outcome of primary root canal treatment: systematic review of the literature – Part 1. Effects of study characteristics on probability of success. *Int Endod J* 2007; **40**: 921-939.

Professor Martin Tickle responds to the above three letters on behalf of his co-authors: We welcome the comments from colleagues concerning our primary care based study of endodontic outcomes. The principal issue raised by all three correspondents concerns the measurement of success of endodontic treatment. Traditionally, dentists have used radiographic appearance as a 'proxy' measure of apical periodontitis and therefore of success or failure. However, there is uncertainty about how accurate radiographic appearance is as a measure of success of endodontic treatment. The relationship between radiographic appearance and clinical symptoms and tooth loss is not clearly understood. Yet without hard evidence dentistry still continues to use radiographic appearance as the principal outcome measure for endodontic therapy rather than an unequivocal outcome measure such as tooth loss. This after all is what endodontic therapy is trying to achieve and has the greatest impact on the patient, yet this outcome is referred to as 'unusual and unrecognised' and an 'oversimplification'. Research outcome measures that are simple and unequivocal are preferable to measures which are reliant on the judgement of an examiner and therefore of questionable reliability. Until we have a firm understanding of the relationships between radiographic appearance, presence of pathology and clinical outcomes perhaps we should focus on outcomes that are definitive, easily measured and crucially, those which have the greatest impact on the quality of life of the patient, such as the measures used in our study.

T. R. Pitt Ford makes the point that many of the extractions could be due to tooth fracture. This is a distinct possibility; however, does it matter to a patient why their tooth was extracted? The outcome for the patient is the same, irrespective of whether the extraction was due to infection or tooth fracture. This paper strongly suggests that root filled teeth that are restored with crowns have better outcomes than those restored with