

COMMENT

Letters to the editor

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Restorative dentistry

Concerning disinformation

Sir, it is disappointing that Dr Lewis has chosen to both misrepresent and misquote my article.^{1,2} In one of numerous examples, he states 'that the clinician rather than the patient has provided the consent in the ceramic case presented and that a single treatment approach (to the obvious exclusion of all other options) was strongly advocated'. This is utter rubbish as direct additive monolithic composite cases were presented as well as a ceramic case. He incorrectly describes the ceramic restorations presented as zirconia.

This misrepresentation is deeply concerning as my article clearly states: 'Cases such as this can involve traditional composite techniques, heated monolithic composite techniques or ceramics. All have advantages and disadvantages which should be considered with the patient, as should patient wishes in regard to aesthetic aspirations, longevity/maintenance issues, pulp vitality risks and risk of catastrophic tooth failure. A "cooling off" period is appropriate to allow patients to fully consider possible treatment options'.

Disadvantages of ceramics should be considered, which is why a specific table was included presenting their disadvantages to be discussed as part of the consent process. Yet again he has chosen to ignore this.

The provision of ceramics involves controlled tooth reduction with associated risks, again clearly considered. The very low complication rates of contemporary e.max ceramics over a ten-year period was also considered, demonstrating no failure of anterior e.max ceramics. The ceramic preparations were actually described as more minimal preparation than metal ceramic, which they clearly are. Many active clinicians experience similar success, myself included with no failure of anterior e.max ceramics over a 15-year period in wear cases. This is clinically relevant and

obviously far more important than a historical laboratory study unrelated to wear, which does not even consider contemporary ceramics and the tooth reduction that the wear process has already undertaken.³

After a full consent process (yet again clearly covered in the article) the patient elected for ceramics which fully met his high cosmetic aspirations and the radiograph of the case clearly demonstrates a satisfactory periodontal and pulpal response. Contemporary ceramics offer significant advantages over aggressive metal ceramics and the risk lies with the restoration rather than the tooth. For consent to be valid they must form part of the consent discussion in addition to direct monolithic and traditional 'blobbist' composites so the patient can decide which treatment or combination of treatments they may wish to pursue. All are clearly discussed in my article.

Some confusion regarding contemporary clinical techniques would be forgivable, however, blatant misrepresentation and disinformation regarding my article is not.

D. C. Hassall, Solihull, UK

References

1. Lewis K. Valid consent? *Br Dent J* 2024; **237**: 12.
2. Hassall D C. The use of the monolithic ceramic and direct monolithic composite in the aesthetic rehabilitation of tooth wear. *Br Dent J* 2023; **234**: 406–412.
3. Hassall D C. Early failure of traditional composites in tooth wear. *Br Dent J* 2024; **236**: 146.

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Endodontics

Endodontics and antibiotic prophylaxis?

Sir, we read with interest the letter 'Would endodontic procedures really need antibiotic prophylaxis?'¹ While we agree more research is needed, current data do not support the authors' assertion 'endodontic procedures constitute a low incidence of bacteraemia, which is not reduced by antibiotic

prophylaxis', or their conclusion that antibiotic prophylaxis (AP) is of no benefit.

The authors cite a study by Reis *et al.*,² that detected bacteraemia following 4/21 (19%) endodontic procedures in high IE risk individuals given AP, and 2/11 (18%) low-IE-risk patients who received no AP, using qPCR. The authors claimed this showed AP did not reduce the risk of bacteraemia. However, qPCR cannot distinguish live bacteria from recently killed bacteria (blood cultures are needed for that). It is misleading, therefore, to conclude AP was ineffective and had no effect on endodontic procedure-related bacteraemia.

Others have found higher bacteraemia incidence. Debelian *et al.* observed bacteraemia in 54% of cases following endodontic instrumentation 1 mm beyond the apex, and 31% when 1 mm short of the foramen.³ Savarrio *et al.* also demonstrated 30% bacteraemia following instrumentation short of the apex.⁴ Therefore, ~18–54% bacteraemia following orthograde-endodontics seems likely. Given blood is normally sterile, this is neither insignificant nor low. And, unlike bacteraemia caused by 'activities of daily life', eg toothbrushing, it is the consequence of a dental-procedure and potentially preventable.

Although no properly designed studies have examined if AP reduces endodontic procedure-related bacteraemia, several studies have demonstrated that AP reduces bacteraemia following other dental-procedures (particularly extractions), and two studies have shown that AP significantly reduces IE-risk following these procedures in high-risk individuals.⁵ The letter's implied conclusion, that AP is unnecessary for orthograde endodontic-procedures, is not therefore supported by current evidence.

The letter authors also imply antibiotic stewardship and value-based health concerns argue against AP, given the large-number of endodontic procedures performed in the UK

annually (citing NHS data). Although these data record 191,293 endodontic-procedures for 2022–23, current European and American guidelines recommend AP only for high-IE-risk patients (~0.6% of the population).⁵ Thus, only ~1,147 of these procedures would require AP. Extractions data suggest giving AP to this number of patients could prevent 8–9 IE-cases annually, including 2–3 deaths.⁵ Although bacteraemia incidence following orthograde endodontics (~19–54%) may be lower than for extractions (~62–66%), the devastating consequences of IE, including 30% first-year mortality, suggest it would be prudent for high-risk patients undergoing endodontics to receive AP, as recommended by European and American guidelines, until good quality research demonstrates that not protecting patients this way is safe.

M. Thornhill, Sheffield, UK; M. Dayer, Dublin, Ireland; P. Lockhart, Charlotte, USA; L. Baddour, Rochester, USA

References

1. Edwards D, Colloc T, Longridge N. Would endodontic procedures really need antibiotic prophylaxis? *Br Dent J* 2024; **237**: 153–154.
2. Reis L C, Rôcas I N, Siqueira Jr J F et al. Bacteremia after endodontic procedures in patients with heart disease: culture and molecular analyses. *J Endod* 2016; **42**: 1181–1185.
3. Debelian G J, Olsen I, Tronstad L. Bacteremia in conjunction with endodontic therapy. *Endod Dent Traumatol* 1995; **11**: 142–149.
4. Savarrio L, Mackenzie D, Riggio M, Saunders W P, Bagg J. Detection of bacteraemias during non-surgical root canal treatment. *J Dent* 2005; **33**: 293–303.
5. Thornhill M, Prendergast B, Dayer M, Frisby A, Lockhart P, Baddour L M. New evidence calls into question NICE's endocarditis prevention guidance. *Br Dent J* 2024; **236**: 702–708.

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Water fluoridation

Underestimating the impact of water fluoridation

Sir, we are writing with regards to a recently published Comment in *Evidence-Based Dentistry*.¹ This commentary on the Lotus study looking at the effectiveness of water fluoridation for adults and adolescents concluded that water fluoridation remains a cost-saving public health measure and pointed out some of the limitations of the study:

- The data extracted were not validated against an epidemiological standard
- The study looked at patients accessing NHS dental care, so it is representative only of those engaging with services (estimated at 63% of the population by the 2021 adult oral health survey).

However, the commentary did not discuss other limitations, which may have had significant impact on the results and interpretation:

- The fluoridated cohort had a greater proportion of people from the most deprived quintile
- Dentists have differing views on clinical intervention and this will impact on treatment provided; much restorative dental care is replacing failed restorations rather than addressing new carious lesions
- Tracing NHS numbers is less reliable for patients living in deprived areas so more of this population will have been excluded from the study
- Differential uptake of dental care and increasing privatisation of dental care for adults make reliance on NHS treatment data problematic as it is not representative of dental disease experience across the population
- The study compares people on average receiving more than 0.7 mg F/l with those receiving less than 0.7 mg F/l. As there is a recognised gradient of benefit for fluoridation, this approach may obscure benefits. The PHE Fluoridation Monitoring Report 2018 compared populations in receipt of public water supplies with a fluoridation scheme where the fluoride concentration averaged ≥0.7 mg/l, versus populations where fluoride concentration averaged <0.2 mg/l. This comparison would have been more appropriate
- The fluoridation experience of the participants before 2010 is not considered. It is probable that some of the subjects in the fluoridated areas moved there from non-fluoridated areas before their first course of NHS dental care during the window 2010–2020, and vice versa for those in the non-fluoridated areas, who would have benefited from exposure to fluoridated water at a younger age.

Overall, this retrospective cohort study, which was pragmatic and achievable in the timescales available, adds to the research on community water fluoridation. In summary, the findings were:

- 3% fewer invasive treatments in the fluoridated group
- Mean DMFT in the optimally fluoridated group was 2% lower than in the non-optimally fluoridated group

- A saving in NHS treatment costs for optimally fluoridated patients over the study period of £22.26 per person
- A relative reduction in costs to the NHS of 5.5% per person
- The predicted Return on Investment (ROI) was estimated to be £16,884,595 (a 36% ROI made between 2010 and 2020).

However, the limitations of the study may greatly underestimate the impact of water fluoridation. Therefore, it is important that the limitations of this study are described clearly, so that policymakers can understand their significance.

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J. Lewney, Paris, France, and D. Ramasubbu and B. Duane, Dublin, Ireland respond: Thank you for the opportunity to respond to this letter.

We were invited to produce a commentary on an already summarised version of the full LOTUS study.² As with many studies examining water fluoridation, the quality of evidence was graded as 'Low'. This is due to the large number of limitations inherent in all studies aiming to examine the effects of water fluoridation.

We therefore chose to focus on the main limitations, alongside the key ways in which this summary paper outlined novel ways of measuring the effects of water fluoridation in this population. The authors of the original study outline some of these in more detail in the summary paper, and in particular, devote several pages to both the strengths and limitations of this study in the full report.³

We are pleased that our commentary is providing an opportunity to discuss this important topic in more detail.

References

1. Ramasubbu D, Lewney J, Duane B. Investigating the effectiveness of water fluoridation. *Evid Based Dent* 2024; doi: 10.1038/s41432-024-01032-4.
2. Moore D, Nyakutsikwa B, Allen T et al. How effective and cost-effective is water fluoridation for adults and adolescents? The LOTUS 10-year retrospective cohort study. *Community Dent Oral Epidemiol* 2024; **52**: 413–423.
3. Moore D, Nyakutsikwa B, Allen T et al. Effect of fluoridated water on invasive NHS dental treatments for adults: the LOTUS retrospective cohort study and economic evaluation. *Public Health Res (Southampt)* 2024; **12**: 1–147.

<https://doi.org/10.1038/s41415-024-7970-y>