

Summary of: Repair vs replacement of failed restorations in general dental practice: factors influencing treatment choices and outcomes

FULL PAPER DETAILS

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Objective To investigate the impact of repair vs replacement of failed restorations on patient related outcome measures, and to explore the clinical factors that influence this decision. **Design** Multicentre, prospective practice-based study. **Setting** Dental practices within Salford, Trafford and East Lancashire in the North West of England. **Subjects and methods** General dental practitioners were asked to participate and to recruit adult patients attending for routine dental treatment. **Interventions** Repair or replacement of failed restorations. **Main outcome measures** Dental anxiety before treatment using the Corah Dental Anxiety Scale and pain intensity immediately and 24 hours post-operatively using the McGill short form pain questionnaire. Operative outcomes included depth of caries, time taken to complete the procedure, use of local anaesthetic and dental material used. **Results** Of the 103 patients diagnosed with a failed restoration, a statistically significantly greater number underwent replacement than repair ($p = 0.004$). Patients undergoing repairs were significantly less anxious ($p = 0.008$) and had shorter procedure times ($p = 0.044$). Repairs were associated with minimal caries depth and less use of local anaesthetic. **Conclusion** Failed restorations should be repaired where clinically possible, as they are quick and associated with less patient anxiety. Future research should focus on providing high quality prospective data evaluating the longevity of repaired vs replaced restorations.

EDITOR'S SUMMARY

In the same way that to a lay person or patient it is a mystery as to why as highly trained professional people we cannot apparently agree on when a hole is a hole, it must be equally perplexing when we are at odds with whether to repair or replace a restoration. Such is restorative dentistry; a mix of art and science, culture, funding and, arguably last in the list, clinical decision making.

Although a small scale pilot study this work provides a useful insight into how dentistry is actually provided rather than how it 'might' be provided and how a randomised trial may measure it. The decision to repair or replace a failed restoration is one with which we are frequently faced and yet how often do we take the patient's level of anxiety into consideration? Probably rarely as we feel that they have trust in us, our decision making and clinical skills. Yet in a developing health culture in which the patient's choice and autonomy is paramount such decision making seems increasingly at odds with the 'old model'.

The interesting pattern thrown up by this research places restorative dentistry in the centre of some intriguing questions about dental care funding and patient perception as well as highlighting once more our relative paucity of data on the relative longevity of different fillings and filling materials. With falling caries levels in general in the UK population in recent years it is difficult to predict whether such decisions will become more, or less, critical. What will be the balance of care as the cohorts of the 'heavy metal' generation move through to older age and eventually leave us? Will we err more on the side of running repair? And thereafter, with a population which includes a high percentage of citizens with little or no existing hard tissue disease and therefore little or no dentistry to repair or replace will our treatment planning skills still be required?

The continuing march of sophistication in terms of dental materials will also come to impact on this matter so that although the current favoured material for repair is

still amalgam, even in an aesthetic age, as this is, theoretically at least, 'phased down' other materials will need to be used to mind the gap.

The full paper can be accessed from the *BDJ* website (www.bdj.co.uk), under 'Research' in the table of contents for Volume 218 issue 1.

Stephen Hancocks
Editor-in-Chief

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IN BRIEF

- Describes the findings of a pilot study exploring the factors that may influence the decision to repair or replace a failed dental restoration in general dental practice.
- Explores the impact that repair vs replacement of failed dental restorations may have on patient reported outcomes such as pre-operative anxiety and post-operative pain.

COMMENTARY

This is a multi-centre, prospective dental practice-based study reporting on the impact of repair *versus* replacement of failed restorations using clinical and patient related outcome measures. In this study 103 patients with failed restorations were examined by 38 general dental practitioners in the North West of England working under NHS and/or private remuneration arrangements. Of the 103 patients included in this study, approximately one-third underwent restoration repair and two-third underwent replacement. The diagnosis of failed restorations and decisions on whether to replace or repair them were based on the dentists' own clinical judgement and usual practice. Arguably, the lack of standardisation in the diagnosis of secondary caries and inter-examiner calibration, and the fact that patient decisions may have been affected by cost as patients were treated under different remuneration systems, possibly introducing a bias, may be drawbacks of this study. Nonetheless, some of these drawbacks have been adequately addressed by the authors.

The findings from this study demonstrated that restoration replacement is associated with greater patient anxiety levels than restoration repair and there being no significant difference in pain intensity during and 24 hours following the intervention. Further findings include restoration repair being quicker than replacement, reduced need for the use of local anaesthesia for repair procedures and the majority of repaired restorations being associated with minimal depth of recurrent or secondary caries, i.e. pre-cavitated (white spot) lesions. With the exception

of recurrent or secondary caries the authors did not report on other causes of restoration failure that might have warranted clinical intervention. A further relevant finding of this study is that while resin composite and Glass ionomer materials were more commonly used in repairs, amalgam was the most common restorative material of choice for restoration replacement. This is of particular interest, in an era of increasing patients' demands for tooth-coloured restorations and improved material properties of contemporary resin composites.

Hopefully, the authors will follow up their treatments for long-term data collection looking at the longevity of the failed restorations which were repaired *versus* those which were replaced.

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AUTHOR QUESTIONS AND ANSWERS**1. Why did you undertake this research?**

A large proportion of the restorative work that is carried out in general dental practice is dedicated to the treatment of failed dental restorations. There are no guidelines on whether such restorations should be repaired or replaced, and more importantly, we found little evidence exploring the impact of repair *versus* replacement on patient experience. Given that previously published Cochrane systematic reviews had called for high quality randomised controlled trials comparing outcomes for repair *versus* replacement of failed dental restorations, we thought it important to conduct a pilot study investigating the clinical factors that influence treatment decisions and the impact that such decisions have on patients.

2. What would you like to do next in this area to follow on from this work?

It is evident that the management of a failed dental restoration involves a complex multifactorial decision making process. Though repairing failed restorations appeared to produce more favourable outcomes in our pilot study, it would be of interest to determine whether repaired failed restorations offer similar long-term outcomes as those that are replaced.