

### IN BRIEF

- One hundred and sixty-nine reinforced glass ionomer restorations in posterior teeth were assessed in three UK dental practices.
- Ninety-eight percent of these restorations were performing satisfactorily at two years.
- Further assessment by an independent observer is indicated.

# Reinforced glass ionomer restorations

Clinical performance of reinforced glass ionomer restorations placed in UK dental practices  
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## ABSTRACT

### Aim

To retrospectively evaluate the performance of reinforced glass ionomer restorations placed in load-bearing surfaces of posterior teeth in three UK general dental practices.

### Methods

Inclusion criteria for the participating practitioners were that they would be able to find, in their regularly attending patients' mouths, a minimum of 30 Fuji IX restorations placed in load-bearing cavities in posterior teeth. The three practitioners who agreed to participate were given training in the methods of assessment of restorations. Presence/absence of the restoration, presence of secondary caries, anatomic form, margin adaptation, margin discolouration, surface roughness and colour match were recorded.

### Results

Three general dental practitioners and 169 restorations in 116 patients were included in the study. Seventy-eight percent of restorations were placed in molar teeth, the remainder in premolar teeth, with 67 being Class I and 102 Class II. The mean age of restorations at examination was 25 months, ranging from five months to 56 months. Of the restorations examined, 98% (n = 166) were found to be present and intact. No secondary caries was detected clinically. Three restorations were found to have fractured.

### Conclusion

Reinforced glass ionomer restorations placed in load-bearing situations in patients attending three dental practices in the UK were found to be performing satisfactorily at two years. Further investigations, of improved rigour, may now be indicated to more fully assess the performance of such restorations in the long term.

## EDITOR'S SUMMARY

Research carried out in general dental practice is uncommon in the UK, with most dental research taking place in an academic or hospital setting. Many GDPs may feel that research has little relevance to themselves and their daily practice. This is unfortunate, since many, if not most, of the materials and techniques that are the subjects of dental research will eventually filter down to the practice level if the research is successful. *Vice versa*, as the authors of this paper point out, if a material or technique is to be successful it must be appropriate to the practice situation. The involvement of GDPs in research therefore has benefits for all involved.

This paper by Burke *et al.* is a practice-based study looking at the performance of reinforced glass ionomer restorations in posterior teeth. While the authors term the research a preliminary study due to the limitations they encountered, it is nonetheless an interesting report that suggests that reinforced glass ionomer restorations placed in load-bearing surfaces have satisfactory performance in the short term. As they mention in their questions and answers (right), the authors intend to perform longer-term evaluations as a next step. This should help to present a fuller picture of reinforced glass ionomer performance and may give the opportunity to conduct more rigorous practice-based studies.

Though small in scale, the strength of this paper is that it reports the results of 'real world' restorations, highlighting some of the benefits of research in a practice setting. It is to be hoped that more researchers and general dental practitioners will have the opportunity to become involved in this type of research in future.

The full paper can be accessed from the *BDJ* website ([www.bdj.co.uk](http://www.bdj.co.uk)), under 'Research' in the table of contents for Volume 203 issue 1.

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## FULL PAPER DETAILS

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## AUTHOR QUESTIONS AND ANSWERS

## 1. Why did you undertake this research?

There is increasing demand, worldwide, for tooth-coloured restorations in posterior teeth. Resin composite is the material of choice for this situation, but it takes longer to place than amalgam, at an increased cost, therefore, to the patient. Glass ionomer materials may be placed more quickly than composites, but are their physical properties adequate for use in loadbearing situations in posterior teeth? This research aims to answer this question.

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

A two-year clinical evaluation will indicate a restoration's potential for early failure, but longer-term evaluation is necessary. The follow on from this study is an evaluation at five years.

## COMMENT

The manufacturer of Fuji IX (GC) has suggested that this material is suitable for definitive Class I and Class II restorations in adult patients. However, there is a lack of clinical data to support such use. Currently, most research into the clinical performance of dental materials is carried out in academic institutions. However, the authors suggest that general dental practice should become a prime location for clinical dental research; a view supported by this commentator. Thus, the aim of the study is appropriate.

The restorations included in the study were all placed under private contract between the practitioner and the patient, since NHS regulations precluded use of reinforced glass ionomer cements in load-bearing areas in the posterior teeth of adults. The simple design of the study was an attempt to obtain 'real world' data despite the constraints of time, training, costs and research support in general dental practice. However, the authors readily concede the scientific limitations of the study, which included no controls, involved multiple assessors, was retrospective and included restorations reviewed after varying periods of time. While the participating practitioners were given appropriate training in the assessment of the restorations, the authors acknowledge that it would have been preferable to have employed an independent observer to assess restorations at specified time intervals in a more controlled study.

Three practitioners participated in the study. While two practitioners placed the restorations they were assessing, the third did not. Thus, the study was at risk of compromise by variations in the objectivity of the assessors. Despite this, examination of the data did not reveal any marked difference between the practitioners. In view of the limitations, all of which are fully acknowledged and discussed in the text of the full paper, the authors present their work as a preliminary study.

In conclusion, this study, while lacking scientific rigour, does suggest that Fuji IX may perform satisfactorily in the short term in Class I and Class II cavities in adult patients. The results are sufficiently encouraging to suggest the need for a longer, controlled investigation.

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