

THE TIMES ARE A-CHANGING



Should dental professionals continue to drill teeth and fill them with amalgam, or use composite, which bonds to teeth and provides a protective barrier against further decay? **Christopher Lynch**¹ talks pros and cons.

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Dentally aware patients

Much has changed in the practice of dentistry over the past 40 years – or at least, so I am told. The presentation of dental caries in our patients has changed: we no longer see as many patients with grossly carious or extensively damaged posterior teeth. Patients who present with dental decay in posterior teeth are more likely to have small, proximal or occlusal cavities. Our patients have become a more dentally aware and intervention conscious group. Increasingly we are asked questions such as ‘How long will this filling last?’, ‘Will my tooth die?’ and ‘Can I have a nice white filling?’ We, as healthcare professionals, have also changed how we manage dental caries.

Caries management

For caries management to be effective, the old-fashioned ‘mechanical’ approach, which involved drilling large cavities in teeth and then plugging these holes with dental amalgam, is no longer appropriate. Failure to recognise the importance of the ‘biological’ management of caries is really providing a

Amalgam vs. composite

But, you may cry, ‘what’s wrong with amalgam? Has it not worked well for us for many years?’ The answer is yes, of course it has, but we now have a better alternative in composite for restoring posterior teeth. Why is composite better? Well there are a number of reasons:

- It is possible to bond composite to tooth, but it is not possible to do so with amalgam. So, when placing an amalgam restoration in a posterior tooth, we must often cut away extra healthy dentine to create an artificial ‘undercut’ or ‘lock’ to keep it in place. We don’t need to do this for a composite restoration. As we can bond composite to tooth, we simply remove the caries, and then place the composite – that’s all!
- Research shows us that when we place composite restorations, we reinforce the remaining potentially weakened tooth structure – much more so than when an amalgam is placed. This occurs as composite sticks to the remaining tooth, but amalgam does not. A consequence of this is an increased risk of fracture of a cusp of

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disservice to our patients. For some years, we have not only plugged cavities following caries removal, but we have also given our patients dietary and oral hygiene advice. In so doing, we reduce the risk of new caries developing. But, as Bob Dylan said, ‘*the times they are a-changing*’. It is now time for us, the dental profession, to move to a new level in the management of posterior teeth that are damaged by caries or trauma. This has been helped considerably by the development of predictable posterior composite restorations.

a posterior tooth which has been restored with amalgam, which does not happen as often when composite has been used.

- As amalgam does not stick to the remaining tooth, a gap exists between the remaining tooth and the placed amalgam restoration. There is the potential for harmful oral bacteria to enter the tooth through this gap, thereby increasing the risks of further caries development. In contrast, as composite sticks to the remaining tooth, it forms an effective barrier which reduces the risks of this happening.

Slowing the spiral

As a consequence of each of these features, composite is effectively 'kinder' to the restored tooth. It is important to realise that once a bur is taken to prepare a tooth, you have committed that patient to a lifetime of maintenance. A restoration placed today may need to be replaced in eight, 12 or 15 years. At that point a larger cavity preparation may be required. At some point, a cusp may fracture, or the restoration will become so large that a crown may be required to reinforce the tooth. Ultimately the pulp may die, requiring a root canal treatment. At some point, the root canal treatment may fail, and the tooth may be extracted. Our aim, as healthcare professionals, is to slow this 'downward spiral'. In light of its conservative nature, with a requirement for smaller cavities, along with its reinforcement of weakened tooth

- In the past, we were almost afraid of posterior composites. There were often problems associated with them, but this occurred mainly because the profession did not know how to handle composite properly. This has now changed; we recognise that composite should not be condensed in bulk into a cavity like amalgam, but should instead be layered and cured/set in small increments.
- The old GDS regulations did not provide payment for placement of composite resin in occlusal and occlusoproximal cavities in posterior teeth; this however is no longer the case under the new GDP contract.
- As a profession, we often don't like to change the way we work; we find a comfort zone, and often keep to the same range of treatments and techniques which we have found to work.



Cracking of enamel is a common feature in association with amalgam restorations.

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structure and effective marginal seal, composite offers us a greater chance of achieving this in contrast to amalgam.

But do posterior composites work? Yes, they do! Research from primary dental care in countries such as the United States and the Netherlands (not from hospital patients, but from patients that attend general dental practices) show that the lifespan of composite restorations has matched, and now exceeds, that of amalgam.

Why don't we place composites more often?

There are many reasons why we don't place composites more often, including:

- In the past, dental professionals were not trained to place composites in posterior teeth; in my own experience, I graduated as a dentist in 1999, and during my undergraduate training I did not place any posterior composites.

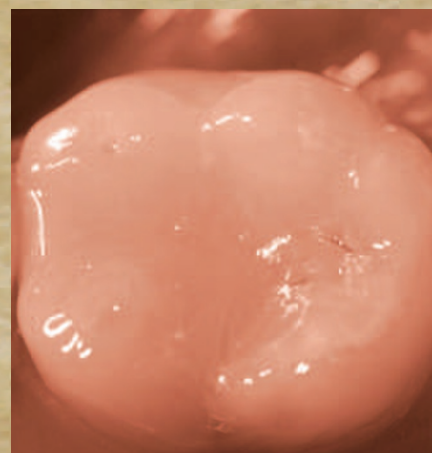
- The materials and instruments required for placing composite resin are often more expensive and composite restorations are more tricky and time-consuming to place.

The patients' best interests

As healthcare professionals, is it enough to say that we will not place composite in posterior teeth because it is more time-demanding and expensive? Surely we must place the best interests of our patients at heart? Posterior composite restorations are 'here to stay' and they have already matched the life expectancy of amalgam restorations. However, in time to come this gap will increase as newer composite materials are perfected and introduced. Not only this, but we know that placing composite is less destructive to a tooth than placing amalgam. My challenge for you is the next time a patient presents with a cavity in a posterior tooth, think of placing a composite instead of an amalgam.



Fracture of tooth adjacent to an 'old' amalgam restoration. Caries is present in this defect.



A completed composite restoration.