

EQUUIA: A True Amalgam Alternative

by Dr. Umar Haque

Do you enjoy placing amalgams? On posterior teeth? On root surfaces? In Class II lesions? Do your patients love to see a brand new amalgam? Or do they ask, “Why didn’t you do one of those tooth-colored fillings?” If you still place amalgam, you need to read this. If you think that you are placing a “bulk-fill” resin, you need to read this.

There is certainly a huge controversy about the mercury in amalgams. Here is what the World Health Organization (WHO) says about amalgam, “Mercury is highly toxic... it may be fatal and harmful... it may cause harmful effects to the nervous, digestive, respiratory and immune systems and to the kidneys, besides causing lung damage.” The WHO also reported that more than 33 percent of total mercury load in sewage comes from dental amalgams.¹

Glass ionomer cement was first introduced in 1972 by Wilson and Kent.² A liquid polyacrylic acid is mixed with a powder glass component and an acid-base reaction occurs, resulting in a glass ionomer cement. The powder, described in a textbook on dental materials, is composed of silica, alumina, calcium fluoride, sodium fluoride, aluminum phosphate and

aluminum fluoride.³ The reader should be aware that glass ionomer dental materials continue to be modified and improved resulting in better physical and aesthetic properties.

As opposed to amalgam, there have been no wars fought, no statements from the WHO and no drama surrounding glass ionomer cements. There have, however, been improvements in glass ionomer cements, from resin-modified glass ionomers to dual-cured glass ionomers. They have different purposes, and different strengths. A major strength of glass ionomer is the fluoride-releasing characteristic.⁴ A dentist has much more peace of mind knowing that recurrent decay is less likely to occur under a glass ionomer restoration. Glass ionomers are self-adhesive⁵ and are well-suited in a wet oral environment.

There are many levels of evidence, and the highest level of evidence is a systematic review. A systematic review is a summary of the medical literature that identifies valid and invalid studies, and uses statistical techniques to combine the valid studies. One such systematic review was published in 2011 by Mickenautsch,⁶ the founder of www.midentistry.com.

1. WHO. *Mercury in Health Care*. 2005.
2. Wilson AD, Kent BE. A new translucent cement for dentistry. *The glass ionomer cement*. *Br Dent J*. 1972 Feb 15;132(4):133-5.
3. *Introduction to Dental Materials*, R van Noort, 2002, p137
4. Mousavinasab SM, Meyers I. Fluoride release by glass ionomer cements, compomer and giomer. *Dent Res J*. 2009 Fall;6(2):75-81.
5. Beech DR, Tjyas MJ, Solomon A. Bond strength of restorative materials to human dentin: influence of post-extraction time. *Dent Mater*. 1991 Jan;7(1):15-7.
6. Mickenautsch S, Yengopal V. Absence of carious lesions at margins of glass-ionomer cement and amalgam restorations: An update of systematic review evidence. *BMC Res Notes*. 2011 Mar 11;4:58.

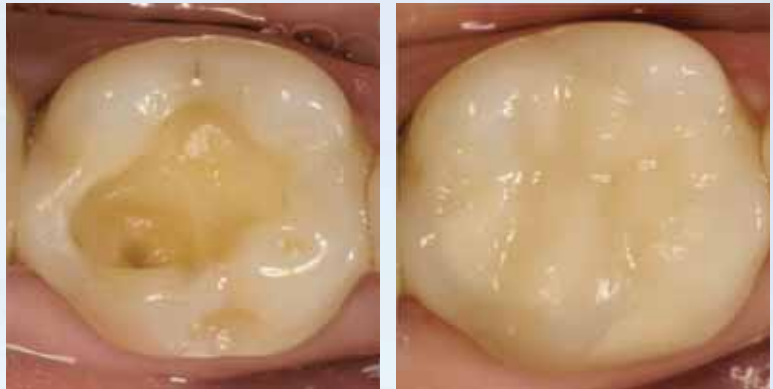
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He concluded, “The overall results of the computed datasets suggest that glass ionomer composite has a higher caries-preventive effect than amalgam for restorations in permanent teeth.” Think about that. What are you trying to achieve when you place any restoration? Obviously you remove decay with a preparation, and then you place a restorative material to create function and form. What constitutes a failure in a restoration? Fracture or decay around the restoration. If glass ionomer has a better effect on caries prevention, shouldn’t that be an obvious choice?

The next level of evidence is a randomized controlled trial, and that was completed in 2003 by Mandari,⁷ comparing the six-year success rates of occlusal amalgam and glass ionomer restorations in 152 children. The researchers used a split-mouth technique where amalgam was placed in one molar and glass ionomer was placed in the other molar. A total of 860 teeth were treated and followed over six years. The only statistically significant difference ($p = 0.001$) was that 10 percent of amalgam fillings had recurrent or secondary decay and only two percent of glass ionomer restorations showed recurrent decay. That means there was five times more likelihood of secondary decay in amalgams than in glass ionomer. This study further verifies the systematic review.

You don’t need a PhD to know that both glass ionomer restorations and amalgam restorations work, and they have been working in many teeth for many years. But think about your patients. Do they want amalgams? Do you think they get excited to go to the dentist to get a big silver, mercury-laden filling in their tooth? Or do you think they would be more excited about restoring their tooth to the correct color, function and form they were born with?

EQUIA, a high viscosity glass ionomer coated with nano-filled, resin-based coating material called G-Coat Plus from GC America, has been studied by researchers in Milan, Italy since 2007.⁸ The head of the study, Basso, presented findings from 245 patients based on G.V. Black’s Class I, II, and V restorations. They found a success rate of 98 percent



Class I restoration bulk-filled with EQUIA Fill and coated with EQUIA Coat.

overall. In Class I lesions, there was 100 percent success. In Class II lesions, they found 98 percent success. In Class V lesions, there was 95 percent success. They concluded that the EQUIA system is a reliable choice for long-term dental restorations, even in load-bearing teeth.

EQUIA was also studied in a retrospective cohort study by Friedl and published in *Dental Materials*.⁹ It looked at the success rates of EQUIA in 41 patients through six dental practices. They found 100 percent success in one-surface restorations, 99 percent success in two-surface restorations and 93 percent success in three- to four-surface restorations over 24 months. The study concluded the modern glass ionomer system EQUIA should be used as a permanent restorative material for posterior teeth. ■

Author’s Bio

Dr. Umar Haque is a graduate from the University of Connecticut School Of Dental Medicine, and has completed a general practice residency at the University of Illinois and University of Chicago. He has been practicing for more than 10 years and has written the book, *Dental 101: The 101 Factors You Should Know Before Going to the Dentist*.

Dr. Haque is a member of the faculty at Midwestern University College of Dental Medicine and teaches there part-time. He has completed the Dawson Academy curriculum, completed the Implant Seminars Continuum and Masters Series, and has taken numerous courses with Misch, Garber, Salama and Goldstein. Dr. Haque has completed a fellowship, masters and diplomat with the American Dental Implant Association and a fellowship with the International Congress of Oral Implantologists.

He is the president of the Passion 4 Dentistry Study Club with 40 active members. He is currently undergoing Accreditation with the American Academy of Cosmetic Dentistry, is a certified continuing education (CE) provider and member of the Academy of General Dentistry, a member of the American Dental Association, the Illinois State Dental Association, the West Suburban Dental Society and the Chicago Dental Society. In his free time, he enjoys spending time with his family, writing and playing basketball.

7. Mandari GJ, Frencken JE, van't Hof MA. Six-year success rates of Occlusal amalgam and glass-ionomer restorations placed using three minimal intervention approaches. *Caries Res.* 2003 Jul-Aug;37(4):246-53.
8. Basso M. Long term dental restorations using high viscosity coated glass ionomer cements. *International Association for Dental Research.* Mar 11;TC.
9. Friedl K, Hiller KA, Friedl KH. Clinical performance of a new glass ionomer based restoration system: a retrospective cohort study. *Dent Mater.* 2011 Oct;27(10):1031-7. Epub 2011 Aug 15.