

Ask the Experts

DENTIN/ENAMEL BONDING

Author and Associate Editor Edward J. Swift, Jr., DMD, MS*

QUESTION: The last few issues of *IERD* have addressed the question of which resin-based dentin/enamel adhesives are the "best." So based on the input of the various experts who have responded to this question, can you tell me whether there is a consensus response?

ANSWER: Although opinions of the experts varied somewhat, I believe that a clear consensus has emerged. When we consider bonding to both dentin and enamel, the three-step etch-and-rinse materials (e.g., OptiBond FL, Kerr Corporation, Orange, CA, USA) remain the gold standard. These versatile materials provide an excellent bond to enamel and a very good bond to dentin. More importantly, they have demonstrated excellent clinical performance in long-term studies.

If we consider bonding to dentin only, the mildly acidic two-step

self-etch systems (e.g., Clearfil SE Bond, Kuraray, Tokyo, Japan) appear to provide the most durable bonds. Although controlled clinical trials have not proven that self-etch materials reduce the incidence of postoperative sensitivity, plenty of anecdotal evidence suggests that they do. The main drawback of these materials is their relatively weak bond to enamel. However, this can be overcome by selective etching of enamel before the application of the self-etch primer.

The one-bottle (combined primer and bonding agent) etch-and-rinse adhesives provide an excellent bond to enamel and a reasonable bond to dentin. However, their dentin bonds are not as stable as either of the previously described categories, especially when the dentin is not protected by a rim of enamel. Despite the fact that they have generally not performed as well as their three-step

predecessors in either long-term laboratory testing or clinical trials, they remain a viable option for bonding, especially when enamel is present and proper techniques are followed. They may not measure up to the gold standard, but in my opinion, they have done very well in the "real world" of dentistry outside of the laboratory and clinical trials.

One category of adhesive remains-the "all-in-one" self-etch materials. By definition, these materials are easy to use; after all, the three necessary functions for adhesion (condition, priming, and bonding) are delivered simultaneously. However, despite their ease of use and increasing popularity, these materials are the least likely to provide a durable bond to dentin and enamel. At the moment, they are generally the poorest option for bonding. Admittedly, there are some exceptions (e.g.,

*Professor and Chair, Department of Operative Dentistry, University of North Carolina, Chapel Hill, NC, USA

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restoration of a deciduous tooth in a difficult pediatric patient), and the materials are definitely improving. Nevertheless, this category of adhesives is the least proven and has the most negatives.

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SUGGESTED READINGS

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Editor's Note: If you have a question on any aspect of esthetic dentistry, please direct it to the Associate Editor, Dr. Edward J. Swift, Jr. We will forward questions to appropriate experts and print the answers in this regular feature.

Ask the Experts Dr. Edward J. Swift, Jr., DMD, MS Department of Operative Dentistry University of North Carolina CB#7450, Brauer Hall Chapel Hill, NC 27599-7450 Telephone: 919-966-2770; Fax: 919-966-5660 E-mail: ed_swift@dentistry.unc.edu Copyright of Journal of Esthetic & Restorative Dentistry is the property of Wiley-Blackwell and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.