# A practice-based assessment of the handling properties of 3M ESPE Scotchbond Universal adhesive

onding to enamel has been an integral part of restorative dentistry for 60 years, following the work by Buonocore<sup>1</sup> which indicated that enamel could be etched with phosphoric acid and a bond to a resin-based restorative material facilitated. However, achieving a similar bond to dentine eluded researchers and clinicians for decades, because of its organic and water content. Despite this, however, advances have been made in the formulation of dentine bonding agents and so-called gold standards such as Sotchbond Mulipurpose (3M) and Optibond (Kerr) were introduced in 1993 and have remained highly regarded. However, as manufacturers

BisGMA	
MDP	
Vitrebond Copolymer	
HEMA	
Ethanol	
Water	
Filler	
Silane	
Initiators	

Table 1: Constituents of Scotchbond Universal<sup>2</sup>

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is co-ordinator of the primary dental care research group at the University of Birmingham and the PREP Panel. seek to provide clinicians with the optimum material, much research and development has been undertaken. It is therefore the aim of this evaluation to assess the handling properties of a newly developed universal dentine bonding system, Scotchbond Universal (3M ESPE) produced following the testing of 400 different formulations (Thalaker C; Personal Communication, April 2013). Its constituents (table 1) include a silane for enhanced bonding to ceramic materials.

#### Materials and methods

Together with the manufacturers of Scotchbond Universal (3M ESPE AG), a guestionnaire was designed in order to obtain background information on the evaluators current usage of dentine/enamel bonding systems and to rate the presentation, instructions, dispensing and ease of use of the new material. The majority of responses were given on a visual analogue scale (VAS). All the members of the PREP Panel were sent a letter asking if they were prepared to evaluate a new dentine/ enamel bonding system and 12 members were selected at random from the positive replies. Two were female and the average time since graduation was 29 years, with a

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is joint co-ordinator of the PREP Panel. range of 18 to 44 years. Explanatory letters, questionnaires and packs of the Scotchbond Universal were distributed in mid-2012 for use for 10 weeks. The data from the returned questionnaires was then collated.

#### Evaluation

All the evaluators used a dentine/ enamel bonding system, with a wide variety of systems used. The reasons for the choice of these materials were primarily ease of use and good results, with other reasons given including: no post-operative sensitivity, manufacturer's reputation, familiarity, and cost.

When the evaluators were asked to rate the ease of use of the current bonding system, the result was as follows:

Difficult to use

Easy to use 4.0

When the evaluators were asked how many dentine-bonded restorations they placed in a typical week, one evaluator placed less than 10, four evaluators placed between 10 and 15, three evaluators placed between 16 and 20, and four evaluators placed over 20 such restorations a week.

The evaluators stated they placed, on average, four enamel bonded restorations in a typical week (range 0 - 10). Seven (58 per cent) evaluators stated that they preferred a bottle presentation, with the remainder preferring a single-unit dose

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