

## Foreseeing the Future: Imaging in Dentistry



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David Hornbrook identified the three most important steps in a successful smile design:

- ▶ determine and address the patient's goals and/or expectations
- ▶ understand the proper techniques for using digital imaging when creating a visual preview of the patient's possible smile
- ▶ fabricate a functional and esthetic provisional—important for both the ceramist and the patient.<sup>1</sup>

#### INCORPORATING IMAGING

To ensure success in my own practice, I have incorporated cosmetic imaging (Smile-Vision® Dental Imaging, Professional Laboratory Services, Inc.) into treatment planning, preparation, temporization, and final restoration fabrication and delivery. The cosmetic imaging service has saved me hours of chairtime, reduced anxiety for all involved, and substantially increased overall patient and dentist satisfaction.

Professional cosmetic imaging becomes an unwritten contract between a dentist and a patient in which both assumes responsibility for a case's outcome. The dentist agrees to provide the patient with a long-lasting smile that is similar to the one in the imaging, and the patient agrees to pay the fee, submit to a dental procedure, and accept the result.

The dentist should follow the guidelines provided with the cosmetic images, and he or she needs to make sure the images are accurate and represent the planned result. If they do not, the images must be redrawn so they do follow the plan—remember to show the new images and explain the necessary procedure to the patient; never assume that the patient understands anything.<sup>2</sup>

#### CASE STUDY Imaging

First, the patient was presented with a before

view of her smiling face, then she was shown an after view with 10 veneers placed (Figures 1 and 2). She asked to see other options involving less teeth (ie, six and four) (Figures 3 and 4). For esthetic cases that can have many options, I prefer to show the after image that represents the maximum treatment first to gauge a patient's level of interest. I then show more options if necessary. If the images are redrawn, note in writing how the new esthetic option effects the treatment and the fee. In the 11 years since we began to use visual case presentation, we have seen a dramatic increase in patient satisfaction. When a patient is pleased with a possible result, he or she is much more likely to be satisfied with the actual result.<sup>3</sup>

In this case, teeth Nos. 9 and 10 had fractured years earlier and had been restored many times with composite resin. The resin restorations that were currently in place were failing, and all four incisors were too short (Figure 5). The patient told me that with each composite resin procedure, dentists always shortened her other teeth. I presented many options to the patient, and she chose to conservatively whiten her teeth before placing veneers on the four maxillary incisors.

Wax-ups and radiographs (Dexis Dental

Radiology) are necessary to develop details of a case. Preoperative models sent to the laboratory service for the wax fabrication as detailed by the images (Figure 6). The incisors were lengthened and duplicated in stone, and a preparation guide and temporary templates were made.

#### Teeth-Whitening Procedure

Optibond™ Solo Plus (Kerr Corporation) and Revolution™ in an A2 shade (Kerr Corporation) were applied to teeth Nos. 9 and 10 to reinforce them for the whitening procedure. Impressions were taken with Half-Time™ (Discus Dental®, Inc.), polished with Speed Stone® (Discus Dental®, Inc.) and splints were fabricated in 20 minutes. Whitening began with a 30-minute application of White Speed™ (Discus Dental®, Inc.). A week overnight whitening procedure with Nite White® Excel 10% and 16% (Discus Dental®, Inc.)<sup>4</sup> also was used to further brighten the patient's teeth from an A4 to A1 color and A0 incisal (Figure 7).

#### Preparation

Anesthesia was administered using Wand® (Milestone Scientific),<sup>5</sup> and nitrous



Figure 1—Computer image of pretreatment full face view.



Figure 2—Computer-enhanced smile.



Figure 3—Computer image of restorative option involving six teeth.



Figure 4—Image of restorative option involving four teeth.