Better Shade Guide
Equals Better Communication

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Introduction

Every technician knows that a single anterior tooth is the hardest to match when taking a patient's custom shade. In the first case study below, a minimum veneer preparation revealed a very dark stump shade that would need to be masked with porcelain and translucency. Under this category come several other issues, such as: Will a platinum foil technique produce the best restoration? How will we control opacity? What about the adjacent teeth – what is their color? Is there any white calcification? Is the white color subtle, medium, or solid?

These questions, or something similar, seemed to come up over and over again when I reviewed the various cases sent into the lab for fabrication. And I came to realize that we didn't really have a very good method of communicating shade with each other-the dentist, the patient and the technician- especially if there was anything unusual about the case.

To answer some of these questions for my benefit as well as that of my fellow technicians, I began to work on formulating over 150 zirconia crowns and to document all of the characteristics I have seen in my 20 years of study. The result, my new shade guide, is a direct help when the dentist, patient, and technician all try to communicate shade and unique patient traits with each other. It's no longer a struggle to come up with the answer to a difficult case because it's all inside that one simple tool!

Case Studies

Study # 1

When the stump shade of a prepared tooth is dark in color, it must be adequately covered. Our veneer is expected to match the adjacent tooth, which has a subtle color of white with calcification. We must have a plan for covering that dark shade with opacious dentin (Fig. 1) and my first step is to determine the patient's enamel color, using my shade guide (Fig.2). This patient's enamel color is reddish/grey or CE-3, according to the photograph, one of four possibilities. To address calcification, I have four anterior stain categories to work with: thick and chalky, all over, incisal and body or incisal only. This patient is characterized by AS-1, incisal only (Fig. 3).

By studying natural, extracted teeth and researching their appearance for many years, I was able to reproduce 28 zirconia crowns, duplicating the teeth I studied. The mandibular crowns, #22-27, have been used as a guide for me, my co-workers and employees (Fig. 4). Likewise, the maxillary 6-11 were developed for the same purpose (Fig. 5). Just as a student needs books to learn the lessons that
he is taught in school, we as technicians need a guide for our work in creating natural looking restorations.

After the veneer is finished baking, it is cautiously checked for irregularities by the technician (Fig. 6-left), but before that, the porcelain has to be carefully layered onto the foil with attention to the detail of the patient's shade modifications (Fig. 6-right). To remove the foil without damaging the veneer, a pair of tweezers is used (Fig. 7).

To recreate the adjacent teeth color, a slightly opacious dentin and stump color were produced (Fig. 8), mimicking the patient's natural tooth color. A try-in in the mouth gives every indication that the dark stump has been masked (Fig. 9), which is further exemplified by the next image, (Fig. 10). In addition, the color blending is checked for its natural appearance in the mouth. A rest position view illustrates the matching incisal edge calcification effect (Fig. 11).
Study #2

The patient’s lateral #10 is missing and will be replaced by a zirconia Maryland Bridge (Fig. 12). The patient’s anterior translucency is narrowed down to the AT13-AT16 range, four of sixteen possibilities (Fig. 13) the final choice being AT-13. For a lingual view of the occlusion, the patient is photographed from a different viewpoint (Fig. 14). The Maryland Bridge is photographed on a mirrored surface (Fig. 15) and again after cementation (Fig. 16).

Conclusion

A good communication tool is essential to the guidelines we expect technicians to follow. Oftentimes, we comment on a technician’s artistic skills. And a technician does have to possess a certain amount of an artistic nature in order to be successful. But artistic expression without discipline usually won’t produce the type of results that the clinician and patient are looking for. If the perception of the client, who pays the bill, is different than that of the technician, will it sell?
With the Chair Side Shade Selection Guide in hand, the technician has a tool that will build confidence in his ability to create a restoration that matches. He and the dentist can talk about color and modifications, using exactly the same reference tool while they discuss the case. In addition, the dentist and patient can refer to the pictures when they are deciding on the shade for the crown. Not only does the technician have a clear view of what is expected of him, he can still utilize his artistic skills with the guide in hand. Furthermore, the dentist and patient can see exactly what the results will be, using this one simple tool. Everybody wins!