HOW

Do We Best Communicate Stump Color?

by Luke Kahng, CDT

For more than a decade, everything electronic that we use and depend upon in our daily lives – from cell phones to televisions to computers – is constantly being updated and overhauled. Our communication methods are accomplished faster and more efficiently today than they were even one year ago.

So, what about dentistry? From lasers to scanning systems, things have certainly changed for the clinician. But what about the lab technician and the way he works? There has been a technological shift in certain areas of the dental lab – that's for sure. But the most basic of procedures, the taking of a patient's shade, has not really changed much. Clinicians and dental labs alike still use the same monochromatic shade tabs and expect or hope that they will match with a patient's adjacent teeth.

And what about stump shades? A patient's after-prep color can affect the final color of a restoration, as we all know. But do we have effective tools with which to communicate the exact color? This question arises especially with metal-free restorations and porcelain veneers. The quandary for technicians is that sometimes the color in a stump shade is multiple, meaning their porcelain layering techniques need to take this into account. But if technicians don't know the exact colors they're masking, they're going to have trouble doing it.

This article demonstrates a series of case studies in which this very issue was dealt with. Color will be addressed, especially in terms of perfectly matching your restorations.

Case Studies

In *Figure 1,* the patient was prepped for multiple restorative units, 5-12 maxillary and 20-28 in the mandibular. Extra effort was put into the pumice and polishing of the teeth. The

Fig. 1

effect is that of life-like vivacity, with a yellow brown after-prep tone created throughout. *Figure 2* shows 12 units of preparation, 6-11 maxillary and 22-27 mandibular. A close inspection of tooth #9 at

the gingival level reveals a dark gray tone, which is information the technician needed before he fabricated the restoration. The tone was so dark, high opacity was the only route for covering the gum area and creating a matching color.

There are multiple shades in the after preparation appearance of patient #3 *(Fig. 3)*. Close attention was paid to these variations in stump color. Our next patient is shown, post-veneer prep, with a very dark stump color *(Fig. 4),* which took some effort to mask with feldspathic porcelain. The gingival line is critical in this next veneer preparation case *(Fig. 5)*. If the clinician cannot prep the teeth more, opacity porcelain will have to be used to hide the dark gingival area but create translucency at the same time. Traditional stump color tabs are shown next to the teeth to achieve a color match. They give us a little bit of information but not the complete details the technician prefers to have before beginning the case. If a photo accompanies the case, then the information is obviously going to be even more helpful to the technician.

The next patient's stump color demonstrates this even further. How can we possibly describe tooth #9 with traditional stump shade guides *(Fig. 6)?* Teeth #7 and 10 are prepped for veneers, which will work out well, and #8 as a crown prep looks good, without having to mask a dark color. But #9 defies conventional description, leading to a problem: the crown will be gray in color compared to the other teeth if we don't mask that darkness in his underlying color.

The LSK121 *Simple Enamel and Prep Color Guide* was invented to help solve the issues we often have with stump color *(Fig. 7)*. *Figure 8* is a good demonstration of a very dark shade to be masked with porcelain layering techniques but difficult to describe with words, once again verifying that a picture is worth a thousand words.

But what can we do about the next case *(Fig. 9)?* The gold post is dark and needs covering, but it doesn't involve the whole tooth. Instead we will be covering tooth structure at the gingival, along with a slight amount of body area. The stump shade is a perfect match with the *Simple Enamel and Prep Color Guide* APC 2, as demonstrated. The rest of the body area, along with the incisal, is

a gold post color, which needs porcelain masking. If the same porcelain colors are used throughout the entire restoration, the overall color will be too dark to match with adjacent teeth #s 7 and 10 but if we don't mask the gold, the crown won't match, either.

The next patient case is a perfect demonstration of APC 5. The stump color is *(Figs. 10 & 11)* a dark orange shade but the adjacent teeth are very bright. Again, special layering techniques will have to be employed for a full matching effect. With the variable colors in *(Fig. 12),* the gray tone indicates a "C" shading level, up a notch from black because of the composite material layered on top of the stump for coverage. Not having much room, the clinician could only place a thin layer of composite on the area. But it is definitely easier to cover the gray tone with a restoration than it would have been to cover black.

By contrast, the stump color in *(Fig. 13)* is only slightly darker than the bright white of the patient's adjacent teeth. In the next photo, *(Fig. 14),* a GC Initial IQ All Ceramic finished restoration was fabricated for tooth #7 and cemented *(Fig. 15)* with G-Cem Automix.

Conclusion

Clinicians and technicians benefit from a specific communication tool with which to describe the path to the results they are hoping to attain for their patients. Especially for the anterior teeth, we cannot mask stump color properly if we don't know what we're masking and where. This is the underlying difference between a beautiful smile and so-so cosmetic results.

Has dark prep color been a problem for you when you consider your ceramic crowns? Think about how you can help yourself solve this issue. The more details we have, the better off the patient, the clinician and the technician will all be when we work as a team to produce the best aesthetic outcome. Shade matching techniques might not be moving ahead at the speed with which our computers, televisions and telephones are, but we do have more available to us than we did 10 years ago. Taking advantage of these color options will give us all a big benefit in the long run! ■

Cases Presentation Photos Courtesy of:

Dr. Mike Gillis, Halifax, Nova Scotia, Canada; Dr. Randall Harris, Gales Ferry, Connecticut; Dr. Nicholas Primiano, Naperville, Illinois; Dr. William Becker, Hoffmann Estates, Illinois; and Dr. Kenneth Pickett, Naperville, Illinois

Author's Bio

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Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Fig. 9

Fig. 10

Fig. 11

Fig. 12

Fig. 13

Fig. 14

Fig. 15