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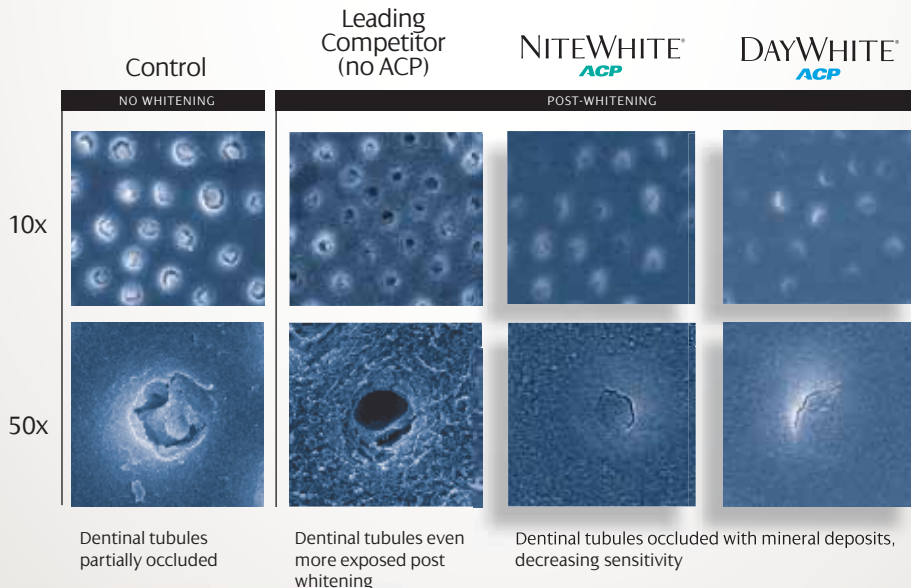
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The American Academy of Cosmetic Dentistry is dedicated to advancing excellence in the Art and Science of Cosmetic Dentistry and encouraging the highest standards of ethical conduct and responsible patient care.

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The *Journal of Cosmetic Dentistry*, ISSN # 1532-8910, USPS# 10452, published four times a year, January, April, July, and October. \$35 per copy / \$135 per year (U.S. & Canada) or \$42 per copy / \$160 per year (All other countries), by the American Academy of Cosmetic Dentistry®, 5401 World Dairy Drive, Madison, WI 53718. 800.543.9220 OR 608.222.8583. Periodicals postage paid in Madison, WI, and additional offices.

POSTMASTER: send address changes to:

Journal of Cosmetic Dentistry
 American Academy of Cosmetic Dentistry
 5401 World Dairy Drive
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Peer-reviewed articles are denoted with the following symbol ❖

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KEEP THE COMMUNICATION LINES OPEN

Whatever happened to picking up the phone and giving someone you care about a call? How often is it easier to send an e-mail instead of meeting face-to-face to address an issue? In today's tech-savvy world, there is no question that it is quicker to text or type a message, than to actually talk about it face-to-face. But all too often, the true meaning of electronic communications can turn out like the name of the movie *Lost in Translation*.

Part of the mission of the AACD is to "serve as a user-friendly and inviting forum for the creative exchange of knowledge and ideas." One of the main reasons dental professionals join the Academy is the famous "AACD camaraderie" we hear so much about throughout dentistry. Traditionally, that camaraderie came to life once a year at the annual scientific session. But of course, times have changed.

The bottom line: The forum and formats for member feedback may have changed, but the need for your direct input and involvement in planning the future of the AACD is just as critical today as it has always been, and maybe even more so.

Customizing the consumer experience has been a growing trend in the marketing world for years, and new technology has only accelerated the options available to do so. The newest enhancement to AACD.com—My AACD—allows you to customize your AACD experience, with the ability to "connect" online with other AACD members (à la Facebook). You can share your insights into clinical, Academy, and industry topics in the new and improved member discussion forums—an excellent method for supplying your feedback.

The AACD is joining the blogosphere, as well. As we move toward the annual scientific session, stay informed about key policy changes that affect your Academy. Submit your thoughtful commentary to move the discussion forward.

The Academy's governance structure has been revamped in order to include Member Advisory Councils in a number of critical areas, such as publications. These focus groups serve as fertile ground for harvesting ideas to help improve the AACD product and ultimately enhance member value.

Specific to the *Journal of Cosmetic Dentistry (JCD)* and the AACD's newsletter, the *Academy Connection*, look for an important readership survey in 2010. What type of content piques your interest? What type of format do you prefer your information delivered in? What would make you look forward to opening up AACD publications when they arrive in your mailbox (or inbox)? The *JCD*'s Editorial Review Board and the Communications team at the AACD Executive Office are relying on your input to help redesign the way AACD communicates with you.

I strongly urge you to keep the communication lines open with your Academy. Our leadership and staff need your insight in order to build a bright future for our organization. Communicate in whatever way you prefer: You can e-mail us (membership@aacd.com); Facebook us (www.facebook.com/aacd25); Tweet about us: (twitter.com/theaacd); log-on (www.aacd.com); dust off the old fax machine (608.222.9540); or, yes, call us at: 800.543.9220 or 608.222.8583.

We look forward to communicating with you,

A handwritten signature in black ink that reads "Michael". The signature is fluid and cursive, with a large initial "M".

Michael J. Koczarski, DDS, Editor



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PRESIDENT'S MESSAGE



SMALLER WORLD— BIGGER COMMUNITY

In a universe where we can literally connect with anyone anywhere at any time, we may know more people but do we know each other as well?

At my first Annual AACD Scientific Session in 1996 (San Diego,

CA), I was immediately struck by the camaraderie among our members. They were passionate about dentistry, loved being infused with the energy that occurred at our annual scientific session, and relished getting together with colleagues who shared their ambitions.

At that time, our membership numbered 2,382 dentists and laboratory technicians. Touching base with an AACD member was fairly easy. The directory was thin and if you'd been around awhile there was a good chance you personally knew many of the members. People took full advantage of the situation to form significant friendships with their AACD brethren.

Logistically, holding a meeting was relatively easy. Because of its size, a host of locations could accommodate the AACD's annual scientific session, and attendees came from all over the world. Though the world was large, our members felt an extraordinary bond that was strengthened through shared experiences within our Academy. They took pleasure in being a part of a small group that held a unique niche in dentistry. I cannot say how many times I've heard about the days when the entire group of dentists, laboratory technicians, and their spouses would gather around a single resort pool to talk, laugh, and revel in their special bond. No matter from where they traveled, it was easy to feel connected—it might have been a *big world*, but they were a *small community*.

As with any successful organization, growth expanded our ranks and affected the group dynamics. Annual conference attendance grew. The directory swelled to the point that printing it annually was no longer prudent in the digital world. Regardless of the venue, the "gang" could no longer fit around a swimming pool, and staying in touch became more difficult. Time had to be planned effectively in order to see all of your friends. The annual scientific session was becoming so large that you actually might not be able to run into people you were hoping to see!

Now that the AACD was larger, new opportunities and responsibilities presented themselves. As our reach extended further in the world, the demand for more effective

communication increased. It was evident that our former methods of communication had become outmoded and that systems needed to evolve.

The challenge became finding ways to evolve systems in a manner that would maintain the collegial atmosphere that had made membership in the AACD so desirable in the first place. That's quite a tall order in an age when we have more "digital time" and less "face time," especially when our fraternal connections now extend far beyond the geographical borders of our membership.

In response to this challenge, the AACD has been working hard to develop organizational partnerships. We should feel extremely positive about the relationships that have been cultivated with a number of groups, including the Academy of General Dentistry, the American Academy of Implant Dentistry, and the American Board of Implantology. In fighting for our common position on the advocacy of our credentials, we have demonstrated that we can have more success when presenting as a unified front.

In the past few years, we have also built synergy with the American Academy of Esthetic Dentistry (AAED) by identifying common objectives and finding ways to mutually evolve our science for the betterment of the entire dental profession. A large contingent of AACD members attended last summer's AAED-sponsored International Federation of Esthetic Dentistry meeting in Las Vegas. There was no doubt that our members had a valuable educational experience and enjoyed the camaraderie of their colleagues at the event; the connection was evident.

Plans are under way for the Fall 2010 AACD International Meeting in London. The meeting will be co-sponsored by AACD Affiliates—the British Academy of Cosmetic Dentistry, the Dental University of Paris Study Group, the Swedish Academy of Cosmetic Dentistry, and the German Society of Cosmetic Dentistry—and by the European Society of Cosmetic Dentistry. I am sure that it will not be the last time the AACD goes "across the pond" to celebrate our core values of inclusion, diversity, education, and community with our international colleagues.

I also am proud to announce that the AACD and the Japanese Academy of Esthetic Dentistry have entered into an organizational "sister relationship" to facilitate our common objectives related to education. These efforts were initiated during preparations for our 2009 meeting in Hawaii and a special camaraderie developed. In addition to hosting delegations at our respective future meetings, there are plans to share journal articles and speakers.

continued on page 12

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ABOUT THE COVER



by Nancy A. Norling, DDS, AACD Accredited Member (AAACD)
and Lance A. Hancock

Heather, a vibrant 27-year-old respiratory therapist, and Lance Hancock, a dental laboratory technician, were excited about their upcoming wedding in Napa Valley wine country. Heather considered enhancing her smile and, with the wedding date set, she decided this was a good reason and a good time to do it.

Years ago, Heather's two central incisors had been bonded to conceal two large enamel defects that left her teeth with large pitted and discolored concavities. The bonding had been replaced many times and the staining was becoming visible once again. Because she wanted a more permanent solution, one that would also make her teeth "fuller and more even," Lance strongly suggested restoring her teeth with porcelain veneers. However, Heather was concerned about losing tooth structure and that the new teeth would appear unnatural.

Therefore, several options were discussed: Simply replacing the bonding; orthodontics to correct the slight rotations, followed by replacing the bonding with new composite restorations or porcelain veneers; using "prep-less" veneers to fill out her deficient buccal corridors; or restoring #5-12 with a combination of the above. Orthodontics was ruled out because the wedding was in just two months, and Heather was opposed to any orthodontic treatment, even if time allowed. Following a comprehensive examination, a diagnostic preview was designed to demonstrate her smile if veneers were placed on #4-12. Having seen many "before and after" restored case images—and knowing that her fiancé would be responsible for her new veneers—Heather decided to proceed with treatment, feeling absolutely certain that her new smile would be beautiful!

Our goal in restoring a smile is to be as conservative as possible and achieve the desired results with as minimal reduction as possible. Although we were unable to correct Heather's left-of-center midline position, we did correct the slight cant, making the centrals more symmetrical. Teeth #4, #5, #12, and #13 were restored with "prep-less" veneers; prior to the impression taking, the only alterations were made using a fine sandpaper disc over the height of contour on #5 and #12.

Heather was placed in acrylic temporaries, which enabled her to verify esthetics and function, as well as indicate if any changes were necessary to reflect the desired look. The delivery appointment went smoothly.



Preoperative.



Postoperative.

Ten Empress veneers (Ivoclar Vivadent; Amherst, NY) were seated with little or no adjustment needed. The final result was a beautiful smile for an absolutely beautiful bride on her wedding day!

When asked if she would do it again, Heather replied, *"Without question—I couldn't be more pleased. My family and friends can't believe the difference it has made, not only by enhancing my smile but also my entire look. I even get compliments from complete strangers and I love it!"*

For more on this patient's clinical treatment, please turn to page 72.

Credits: Dentistry by Nancy A. Norling, DDS, AAACD (Minneapolis, MN). Ceramic artistry and clinical photography by Lance Hancock, Westlund Dental Studio (Eden Prairie, MN). Cover photography by Jill Doherty, www.jilldoherty.com (Berkeley, CA).



PRESIDENT'S MESSAGE CONTINUED

Our Professional Education Committee is making a dedicated effort to incorporate more evidence-based speakers and research in our educational offerings. Dr. Hugh Flax and I were honored to represent the AACD at the Prosthodontic Forum at the recent American College of Prosthodontics meeting in San Diego. The forum's agenda included dialog to identify and address various threats to our profession. Issues such as the evolving laboratory technician crisis and increasing the effectiveness of teaching fundamental prosthodontic principles in our dental schools were covered. At the Chicago Mid-Winter meeting in February, I will have the distinct honor to lecture from the podium at the American Prosthodontic Society, demonstrating our respect and reverence for evidence-based dentistry and indispensable dental principles. The increased communication has generated a great deal of understanding and respect where little existed a short time ago.

Advancements in communication technology are responsible for

providing new vehicles of education. eLearning opportunities over the Internet give our members excellent educational opportunities, no matter how remote their location. In addition, access to the AACD spirit need not occur at the annual scientific session alone. Because of the well-received regional meeting concept, this spirit can be captured multiple times a year.

With all of this ground to cover, the AACD Board of Directors is dedicating resources to help us reliably combine traditional modes of communication with the networking opportunities and virtual tools that modern technology allows. Having different ways for our membership to communicate will help maintain the collegial atmosphere that began so long ago around that resort swimming pool.

In some ways, technological advances have made the world seem smaller. Instead of speaking with geographically close colleagues about the treatment of a particular case (as I used to do in the early stages of my career), our members

can now easily communicate with anyone of their choosing, *anywhere in the world*. Our Accreditation Examiners exercise this philosophy on a daily basis as they mentor candidates from across the globe to help them successfully complete their Accreditation cases.

There was a time when the world was large and we were a small community. While we may not be able to fit around the same swimming pool any longer, we are bound and determined to retain the camaraderie that has been present in this Academy since its inception. The change in dynamics of our organization simply means we are going to have to do it in a different way. *The world seems smaller now, and we are a big community.*

My best wishes to you and yours,



Michael R. Sesemann, DDS
President

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(FAACD), GBAS Volunteer

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INTRODUCTION

The core ideology of the American Academy of Cosmetic Dentistry (AACD) states that we will encourage treatment protocols that are evidence-based and minimally invasive. Our goal is to minimize the loss of healthy tooth structure and tissue while providing treatments that are predictable and result in long-term functioning restorations and patient satisfaction. All dentists are exposed to materials science during training. Information about newer materials, as well as clinical technique refinements, is highly in demand. Speakers who can effectively teach and demonstrate each of these aspects have been a hallmark of the Annual AACD Scientific Sessions.

I have always enjoyed working with form and color and the inner journey through which art-related subjects often led me. (NF)

As a co-chair of the Professional Education Committee (PEC) for this year's Scientific Session in Grapevine, Texas, I felt it was essential to invite individuals who embrace the Responsible Esthetics philosophy and have practiced it throughout their entire careers. The PEC specifically chose Drs. Newton Fahl and Lorenzo Vanini to use an innovative venue incorporating presentation, interactive discussion, and live technique demonstration to educate and stimulate our members. While from different parts of the world—Dr. Fahl from Brazil and Dr. Vanini from Italy—they are both recognized by their colleagues and the profession as masters of composite art. Why should you come to Grapevine and learn from these two masters? Both will lecture, provide a combination lecture/live demonstration, and conduct hands-on workshops. For all general members and Accreditation candidates, this truly is a “can't miss” opportunity!

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Figure 1

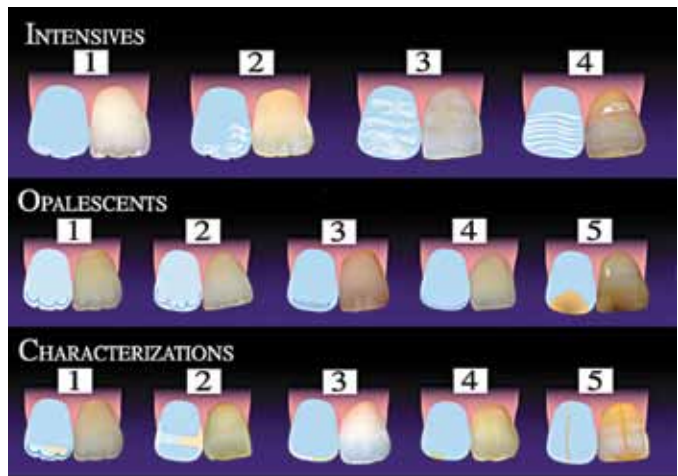
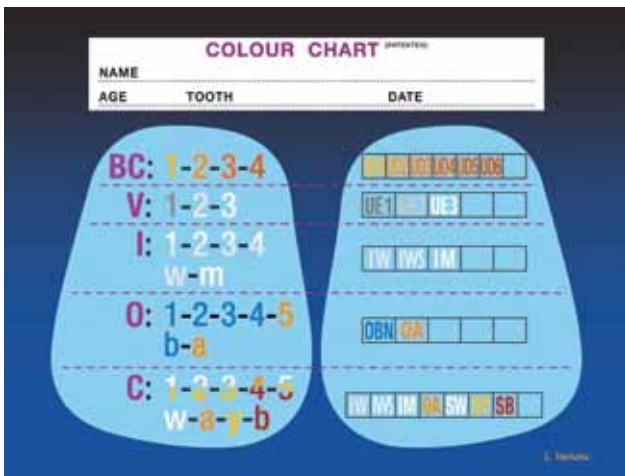


Figure 2



Figure 3

Figures 1-3 (NF): If selected according to the correct physical and optical properties, composite resins can be implemented for even greater challenges, such as crown buildups.



Figures 4 & 5 (LV): Color chart for color mapping (front and back).

I thought it would be enlightening to ask Drs. Fahl and Vanini questions that are germane to our Scientific Session, their individual philosophies, and their views on the direction of and education about composite materials. Also, their responses will include clinical examples of their techniques and procedures that will be demonstrated in Grapevine.

FM: *What inspired you to master composite materials?*

NF: Initially, it was the ability to be the purveyor of my own art. I have always enjoyed working with form and color and the inner journey through which art-related subjects often led me. When I was exposed to the universe of restorative possibilities that adhesion could afford, I instantly connected the two areas. However, the most important factor was having studied under the mentorship of Professor Gerald E. Denehy during my MS program at the University of Iowa. His ability to instill knowledge and passion, which are the prerequisites of a true educator, was fundamental in my decision to continue to learn about this fascinating field.

LV: I started to work with composite materials in 1981 and I immediately understood their potential and importance for our work. However, at that time there wasn't a specific technique of use based on a method of color determination and stratification that was reproducible and within the reach of everybody. From there I began to study color in dentistry, and I developed my

theory about color and stratification and the anatomic stratification technique with silicone stent.

FM: *What attracted you to be part of the AACD Scientific Session, and what are your expectations?*

Nowadays, composite materials have mechanical characteristics that are absolutely better than in the past, and all of them exhibit good wear resistance, cohesion, and smooth surfaces. (LV)

NF: The AACD has always endeavored to break new ground germane to enlightening the dental community, and the 2010 meeting has captured my attention because of its educational format. Specifically regarding the program that I will be teaching, I expect the attendees to benefit tremendously from the lecture/live demonstration sessions from different presenters' points of view, because it will cause them to contemplate distinct concepts.

LV: I'm honored that you invited me; I'm always glad to receive invitations from prestigious international academies. I will present at my personal best and share my wealth of clinical experience and research with the AACD.

FM: *While some dentists believe that "a composite is a composite," what are characteristics of materials introduced in the past couple*

years that make them superior to materials introduced more than five years ago?

NF: The industry is striving to produce universal-type composites, which should provide both high strength and excellent polish. Concerning physical properties, nanotechnology has allowed tremendous improvement in both areas by increasing the filler content and particle morphology. Several companies have come out with new chemistry for the organic phase, in an attempt to reduce polymerization shrinkage and enhance sculptability. From an optical properties standpoint, improvements on levels of opacity/translucency and refractive indices have permitted the synthetic materials to blend in more naturally with the tooth structures, making achieving lifelike restorations more predictable (Figs 1-3).

LV: Nowadays, composite materials have mechanical characteristics that are absolutely better than in the past, and all of them exhibit good wear resistance, cohesion, and smooth surfaces. In speaking about real innovation and improvement in esthetics, we have to consider two groups of composites: Ena HRI (Enamel Plus HRI in Europe) by Micerium SpA (Avegno, Italy), and the rest of composites. Ena HRI is a system born from a new theory about color and stratification. It was the first composite in the world to have characteristics of fluorescence similar to the natural tooth, the first that

developed three enamels with different values calibrated on the age biotype and one universal dentin shade, it is the only system that offers a color chart based on the new color theory that foresees five dimensions, and the first that introduced a heater to warm up the composite bodies before use. The Ena HRI research team (Dr. Thomas Niem and I) developed a new enamel with the same refraction index of natural enamel; this makes the system unique and highly innovative. Ena

HRI has been constantly evolving for almost 15 years to stay updated; it is the composite that others try to emulate (Figs 4 & 5).

FM: *Is there a non-clinical process you go through to evaluate a composite material's benefits and limitations for cosmetic procedures, and is this something you can demonstrate live in Grapevine?*

NF: For every composite system that I evaluate, I make discs of varying thickness to be able to ascertain the effect of thick-

ness in opacity/translucency, as well as chroma and value changes. This is a practical adjunct that aids the clinician in visualizing pre-clinically the optical changes that the material to be used intraorally will undergo. I can certainly show that (Figs 6 & 7).

LV: It will be sufficient to build up a tooth copying a natural element and, after, compare the likeness in relation to the color dimensions and the anatomic shape (Figs 8 & 9).



Figures 6 & 7 (NF): *The perception of a "color from the surface" on the natural enamel suggested the use of chromatic enamels for both Class IVs and direct veneers.*



Figures 8 & 9 (LV): *Fractured incisor restored with composite. The contrasting effect created by the white characterization of mamelons and the blue incisal halo is evident.*



Figure 10



Figure 11



Figure 12

Figures 10-12 (NF): "Blend in" effect of a composite resin is crucial for making the restoration inconspicuous in cases where both natural and artificial enamels can be seen. Diastema closure is a typical example of when thin layers of composite virtually disappear over the natural tooth structures.

FM: *There are many, many composite materials available today and they are constantly changing. Considering evidence-based dentistry and Responsible Esthetics, how can a dentist select materials to use that will provide them a high confidence level of esthetics/cosmetics and functional success over time?*

NF: The best way is to study scientific journals and be critical when evaluating data provided by independent researchers. Understanding

and interpreting materials and methods can prove elusive at times, so my advice is to compare test results; for example, wear, strength, color properties, etc., referring to a specific composite resin, from different sources and researchers (Figs 10-12).

LV: In my opinion, the dentist must first learn how to determine tooth color in a more precise way and stop improvising. A good esthetic restoration is born from a good knowledge of color and

a reproducible stratification technique, and each composite should be developed from a specific theory of color and stratification. A composite material that does not have this type of support is missing personality and character, and usually is used in different and improper ways. From the esthetic point of view, the modern nanofilled composites offer enamel body that is too opaque because of the high filler content that stops the passage of light, and



Figures 13 & 14 (LV): Preoperative; non-vital discolored incisor. Postoperative; after bleaching and composite restoration of the incisal corner.

because they have a refraction index different from that of natural enamel (Figs 13 & 14).

FM: *Considering any material improvements in the past year or two, how have they impacted your clinical techniques to maximize your esthetic results?*

NF: I have been very comfortable using composite resins that have been on the market for over 30 years because of the excellent optical and physical properties, which remain unchanged. I also try and experiment with as many new systems as I possibly can to absorb the best and the worst each can provide. My school of thought and teaching philosophy is not locked into a system because it is considered "state-of-the-art." I teach colleagues to think about the ideal properties a composite has to have and select from among the myriad of available products on the market. For instance, an "outdated" restorative composite may have a great dentin shade in terms of opacity, chroma, and

strength but cannot be used as artificial enamel because it lacks ideal optical properties and polishability.

For every composite system that I evaluate, I make discs of varying thickness to be able to ascertain the effect of thickness in opacity/translucency, as well as chroma and value changes. (NF)

LV: Material improvements didn't impact my technique. I have been working with Ena HRI for 15 years and my techniques influenced the development of materials, giving suggestions to the chemists to develop new bodies or improve the already existing one. Those who read my book will understand this.

FM: *What are a couple areas for improvement you feel are possible for future composite materials?*

NF: The first one is actually conceptual. I really feel strongly about the industry coming up with a standardized nomenclature for dentin and enamel

shades. As an example, having an artificial dentin be called "Opaque," "Opacious," "Body," or "Dentin" becomes exceedingly confusing for the general dentist who is just starting to venture into the use of layering techniques. Although each company has its own marketing agenda, I think everyone would benefit if they reached a consensus, as is done with feldspathic porcelain and ceramics. Dentin is "Dentin" and enamel is "Enamel"—how hard is that? Secondly, there is enough evidence that there is no need for the many shades that most systems often provide for artificial enamel and artificial dentin, which, too, can be cumbersome and misleading. Regardless of the technique employed and who teaches it, the universe of shades necessary for restoring most anterior cases is in fact really narrow.

LV: The connection between organic matrix and filler should be improved to give more cohesion to the material; the



Figures 15 & 16 (NF): Veneering a single discolored tooth to match the adjacent dentition requires knowledge of color theory applied to the selection of nature-mimicking composites, in addition to having a deep knowledge of anatomy.

high filler content needed to guarantee resistant surface and high physical properties should be bonded with higher force with the organic matrix, thus reducing the chipping and fracture of the material.

FM: *Since you have shared your ideas and techniques with each other, what do you have in common and what are your contrasting views?*

NF: I have learned many enlightening concepts from Lorenzo, which I have incorporated into my practice and my courses, and I will be forever grateful to him. His brilliant concept of the use of achromatic enamels to modulate the chroma and value truly mimics the way natural teeth are composed. There is tremendous worth in his approach and it can be extremely effective in the hands of those who are knowledgeable about color and are trained to use the system he has developed. On

the other hand, I subscribe to a technique that may be more encompassing when it comes to the use of both chromatic and achromatic enamels. Although all clinical cases can be solved through the use of achromatic enamels, I find that the implementation of chromatic enamels may provide more predictable results in some clinical challenges. In addition, the vast majority of composite systems use the chromatic (Vita [Vident; Brea, CA]) designation, whereas there are only a few that use the achromatic enamel (non-Vita) approach. From a teaching standpoint, the latter technique may be far more outreaching (Figs 15 & 16).

LV: We both love what we do. I use a composite system I developed over 15 years of continuous research, while Newton uses different parts of different systems. We follow different paths, but I respect and admire him as a man and as a dentist (Figs 17 & 18).

FM: *What do you feel are the two or three most important attributes of direct composite materials, and is there a possibility you could do a live demonstration in Grapevine of some of the more popular materials to show how they stack up to these attributes?*

NF: In order to switch from the restrictive and outdated "direct bonding" paradigm to the newer, bolder, and more fulfilling "composite artistry" arena (as I think the proper use of composite resins for minimally invasive esthetic dentistry ought to be called), the clinician has to select a system or systems that, individually or combined, will provide the following properties: a) sculptability, b) fracture and wear resistance, c) polishability, and d) natural optical and color properties. During my presentation in Texas, I will discuss these attributes as they pertain to various systems—addressing the chromatic enamel versus achromatic enamel approach—as



Figures 17 & 18 (LV): Preoperative; non-vital discolored incisor. Postoperative; the element was restored with composite material after bleaching. Natural translucency and opalescence of the incisal halo are perfectly reproduced.



Figures 19 & 20 (NF): A combination of properly selected achromatic enamels and artificial dentins of correct opacity and chroma determined a natural blending of color. Macro and micro texture realization was key to a seamless tooth-composite transition.

I demonstrate live on an acrylic model the buildup of two central incisors from start to finish (Figs 19 & 20).

LV: The most important attributes are the technique for the color determination and stratification, and the dentist's skill. I will show this in a live demonstration (Figs 21 & 22).

FM: *To become a "Master of Composite Art" involves discipline, humility, and self-confidence. What advice can you offer*

those that wish to follow in your footsteps?

NF:

1. Find a true teacher who can mentor and inspire you throughout your journey.
2. Read all you can about the subject, take all things into consideration, retain the good and discard the bad information.
3. Attend as many practical, hands-on courses as possible.
4. Practice the techniques learned to exhaustion and, when you think you have mastered them, practice some more.
5. Never consider yourself a master; no matter how good you may have become, knowledge should never surpass wisdom.
6. Be appreciative of and thankful to all those giants on whose shoulders you have

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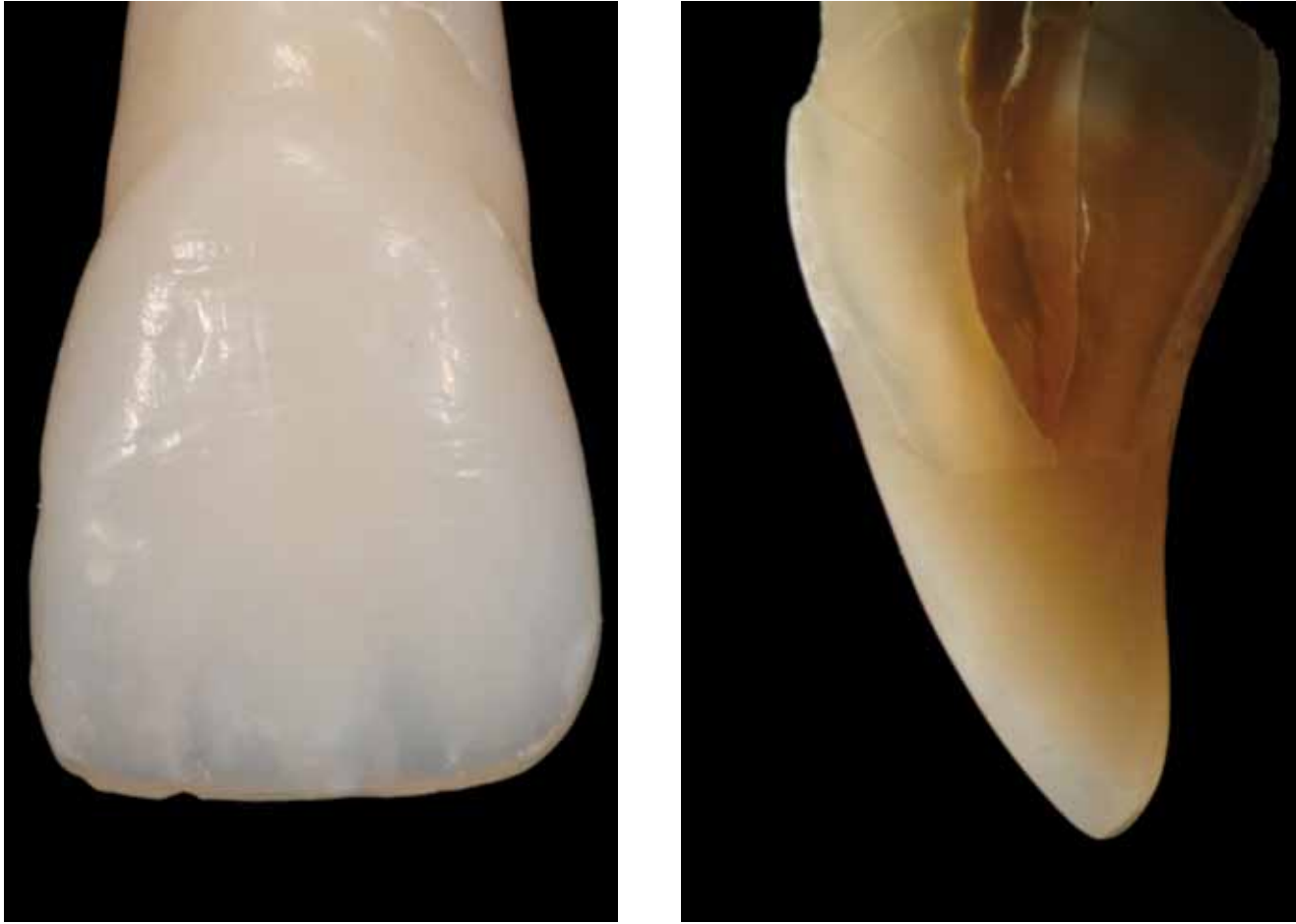
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Figures 21 & 22 (LV): Tooth buildup in composite and section of composite restoration on an extracted tooth.

stood to get a better view of the horizon.

LV: Go, as I did, to dental laboratories to identify one's potentialities, improve them, and develop a project with firm belief. Time rewards willpower and sacrifice.

CONCLUSION

Based on the information shared by Drs. Fahl and Vanini, our Academy is indeed fortunate to have both of these masters at our Scientific Session in Grapevine, Texas. The blueprint for the PEC Committee was "Responsible Esthetics." Both

of these clinicians embraced responsible and minimally invasive dentistry well before it became in vogue for our profession. Don't miss this opportunity to learn from the true masters of composite art. This is their first appearance together at an international conference. It may be the opportunity of a lifetime.

AACD Acknowledgment

The American Academy of Cosmetic Dentistry recognizes Dr. Frank J. Milnar as an AACD Accredited Member (AAACD), Accreditation Examiner, and PEC Co-Chair.



ON TARGET: PART II—MOTIVATION IN TODAY'S WORKPLACE



by
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Editor's note: This article is based on a lecture held at the 25th Anniversary AACD Scientific Session in Honolulu, Hawaii.

INTRODUCTION

The "knowledge workers" of today want to maximize their potential, find satisfaction in the workplace, and be respected by colleagues and employers alike.¹ Attracting and retaining such employees and encouraging them to be productive in their positions requires careful management and leadership. Today's knowledge workers "own" and want to maximize their skills.¹ If they cannot do this in a particular work environment, they will seek employment elsewhere. However, in a company where people find that their ideas and creativity are encouraged and respected, decisions are made by the group, and involvement is supported, employees work more enthusiastically toward the organization's goals, as well as toward achieving their personal goals. As a result, productivity increases throughout the business.²

An employee's ability to make a difference and be acknowledged for that effort ultimately becomes motivational.

It has been stated that the "goals, values, and beliefs to which an individual is unequivocally committed give a sense of direction, meaning, and purpose to life."³ While it is important for employees to know and support the organization's goals, individuals gain personal strength when they believe in those goals and feel they make a relevant contribution toward them. An employee's ability to make a difference and be acknowledged for that effort ultimately becomes motivational. When a person makes a commitment to the company's goals, values, and vision, his or her actions become one with them.^{3,4}

A thriving business depends upon employees who genuinely care about helping and serving customers, clients, or patients. Although technology has affected every industry, the need for careful and caring attention to customer service remains. When the people within an organization feel valued and empowered, they can transfer this goodwill to customers. When employees are fulfilled and happy, it is a testament to the excellent leadership that created and sustained a work environment in which this is supported.

CREATING A MOTIVATIONAL AND PRODUCTIVE WORKPLACE

Psychologist Abraham Maslow addressed the question of what creates a healthy, productive work environment in which the basic levels of human needs are satisfied so that individual workers can increase their confidence and capabilities.⁵ In companies where individuals are honored, respected, and nurtured, not only do they find fulfillment and satisfaction, but they perform their work in a manner reflective of those qualities (e.g., honor, respect, nurturing). In addition, Maslow was interested in how managers and leaders create a work environment where people want to come to work, are productive, and remain in that organization.⁵

MASLOW'S HIERARCHY OF NEEDS

Maslow determined that there are various levels of need in a human being that must be satisfied in order for the person to go to the next level of development. He found that a person can advance to the next level of need only when the previous level or levels have been satisfied. Maslow believed that this principle, which he called the Hier-

archy of Needs,⁶ applied to the work environment and life in general. The Hierarchy of Needs is as follows:

- physiological needs
- safety and security needs
- social needs (i.e., love and belonging)
- esteem needs (i.e., independence)
- self-actualization.

Maslow states that: *"The highly evolved individuals assimilate their work into their identity of self, i.e., work actually becomes part of the self, part of the individual's definition of himself. This, of course, is a circular relationship to some extent...in a fairly good organization, the work tends to improve the people. This tends to improve the industry, which in turn tends to improve the people involved, and so it goes. This is the simplest way of saying that proper management of the work lives of human beings and of the way in which they earn their living, can improve them and improve the world and in this sense be a Utopian or revolutionary technique."*⁵

When employees are fulfilled and happy, it is a testament to the excellent leadership that created and sustained a work environment in which this is supported.

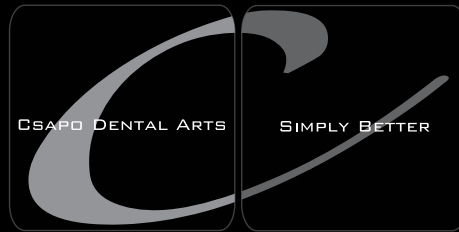
The level of satisfaction that a person experiences on the job is related to how fully the lower three levels of needs on Maslow's Hierarchy of Needs are fulfilled. All levels of need are significant, but if the first three levels are not fulfilled, then satisfaction at the higher levels is impossible to attain. The basic levels—safety, where a person is free from danger both physically and emotionally; security, where salaries are commensurate to responsibility;

and "belongingness," where people have friends at work and they feel camaraderie with colleagues—must be fulfilled before the higher levels of self-esteem and self-actualization can be realized.⁷⁻⁹ In such an environment, people's needs are met and they become self-motivated and self-starters. Talent is encouraged and maximized, and people feel pride in their work and their company.

Skemp-Arlt and Toupençe⁹ suggest that a person's productivity is in direct proportion to their participation in setting their performance goals and being reinforced for progress toward those goals. The most effective motivation comes from within; leaders who sincerely work to develop and expand their employees' talents create an environment in which self-motivation is the norm, and individual and organizational productivity is the end result. The challenges of motivation are immense, but imperative to understand.

INTRINSIC/EXTRINSIC MOTIVATORS AND DE-MOTIVATORS

According to Herzberg,¹⁰ there are motivators that provide job satisfaction and de-motivators that lead to job dissatisfaction. He identified the intrinsic motivators to be "achievement, recognition, the work itself, responsibility, and advancement."¹⁰ When an employee finds the intrinsic motivators to be a part of his or her workplace, there is motivation to work, and to work well. Giving extra effort is not unusual for people who are intrinsically motivated. However, there are de-motivators that lead to dissatisfaction in the workplace. Herzberg called these the "hygienic motivators" (i.e.,



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things that provide basic necessities). While these factors do not lead to motivation, dissatisfaction does ensue without them. The “hygienic motivators” are company policy and administration, supervision, salary, interpersonal relationships, and working conditions.

The job satisfiers or motivational factors relate to a person’s job and what and how they perform on the job. Factors such as “job content, achievement of a task, responsibility, professional advancement, or growth in task capability” impact job satisfaction. Job dissatisfiers relate to the environment in which a person works and performs his/her job. Intrinsic and extrinsic motivators are equally significant.¹⁰

Landes¹¹ states that one of the major questions facing managers/leaders and owners today is how to motivate their employees. He found that the answers usually given are based on “flawed views of human nature,” and three major issues relate to these views:

- Certain companies seem to believe that employees are the property of the company. However, today’s workers are independent and want to be treated with respect and dignity. If they are not treated in this manner, they will not work well or will not stay.
- Motivation is intrinsic and, therefore, extrinsic motivators delivered by an organization are not effective unless these rewards are appropriate and relevant to the individual employee. Thus, one of the major responsibilities of a manager or leader is to match compensation and/or rewards to the needs and desires of the individual.

- Today’s knowledge worker is interested in and capable of participating in company decisions. This participation will not detract from work capacity. Rather, it will build on it due to increased energy resulting from the recognition and acknowledgement of their intellect and leadership capability.

Landes determined that paths of management expertise lead to a productive work situation.¹¹ These paths are centered upon effective motivation that includes hiring well, followed by working continuously with the new employee and existing employees to elevate their skill level. Programs for skills development and continuous education benefit the individuals and the company.

In companies where individuals are honored, respected, and nurtured, not only do they find fulfillment and satisfaction, but they perform their work in a manner reflective of those qualities (e.g., honor, respect, nurturing).

SUMMARY

People in a work environment must have clear goals, expectations, and responsibilities. Developing clear channels of communication that position the goals at the forefront of everyone’s awareness, and being specific about role responsibilities and expectations of desired results, are critical if excellent performance is to occur. People are more motivated when they fully understand what is expected of them. This requires a definition of what to do and how to do it. In addition, people need to understand why the tasks they are asked to complete are

relevant to the whole. Understanding why their work is valuable becomes intrinsically motivational.

Regular feedback about performance also is necessary. The practice’s systems need to be established, administered, and evaluated to determine if their purposes are being served (please see Part I of this series [JCD Fall 2009, pages 33-35]). The flow of the systems should lead to inter-office or inter-practice communication that informs and supports achievement of these goals. Resources need to be made available so that team members have the tools to be successful. They cannot be expected to remain motivated or achieve success without the resources they need, such as money, technology, appropriate and continuous communication, proper training and education, and support. If someone is not performing well, additional instruction and feedback may be necessary. Change may not occur rapidly, but a steady improvement should be expected. Giving positive reinforcement to an employee as he/she makes steadfast improvement will help to solidify enhanced performance.¹¹

As your practice focuses its management systems and leadership on constant improvement, your team members will become more motivated to perform excellently. They will respond well to being held accountable and will learn to hold themselves accountable. Leadership and productivity go hand in hand. Today’s practice becomes ultimately productive when proven skills of leadership are integrated.

References

1. Drucker P. Management challenges for the 21st century. New York: HarperCollins; 1999.

2. Chan A, Chan E. Impact of perceived leadership styles on work outcomes: case of building professionals. *J Constr Eng Manage.* 2005;131:413-22.
3. Waterman AS. Finding someone to be: studies on the role of intrinsic motivation in identity formation. *Identity: An Int J of Theory and Research.* 2004;4(3):209-28.
4. Mullins M, Devendorf S. Assessing goal-directed attention as an indicator of self regulation: a comparison of two approaches. *North Am J Psychol.* 2007;9:229-50.
5. Maslow A. *Maslow on management.* New York: John Wiley and Sons; 1998.
6. Maslow A. *Toward a psychology of being.* New York: John Wiley and Sons; 1968.
7. Ivashchenko AA, Novikov DA. Model of the hierarchy of needs. *Automation and Remote Control.* 2006;67(9):1512-17.
8. Arruda E. Better retention through nursing theory. *Nurs Manage.* 2005 Apr;36(4):16-8.
9. Skemp-Arlt K, Toupen R. The administrator's role in employee motivation. *Coach and Athletic Director.* 2007;76:28-34.
10. Herzberg F. *Work and the nature of man.* Cleveland (OH): The World Publishing Company; 1966.
11. Landes L. Getting the best out of people in the workplace. *J Quality and Participation.* 2006;29(4):27-29.



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BEYOND THE “TRIAL SMILE”



by Susan Hollar, DDS, AAACD
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Editor's note: For more information, log on to www.aacd.com and go to the eLearning section to watch Dr. Hollar perform a trial smile.

INTRODUCTION

When new patients who are seeking esthetic dental enhancement walk through the front door of a prospective dental office, they begin a discriminating evaluation in order to select the dental practice that will best fulfill their needs and desires. They are on a mission to find the dental team that will meet their expectations, which include a caring and trusting relationship as well as competency. Once the clinician has carefully listened to the patient's concerns and desires and explained their dental conditions, he or she can demonstrate options and solutions through the “trial smile experience.”

There are two main advantages of performing a trial smile during the diagnostic phase of comprehensive restorative dentistry. The first and more technical benefit is to obtain a *confirmed* outline form of the final restorations in the patient's mouth, utilizing the lips in order to guide the diagnostic wax-up. The second is to build value and educate the patient during the experience. This article discusses both of these benefits, as well as techniques for achieving the trial smile experience, both technically and behaviorally.

The first step in the trial smile experience is to understand the patient's story, which includes their concerns and desires.

THE TECHNIQUE

The first step in the trial smile experience is to understand the patient's story, which includes their concerns and desires. Active listening is critical in



Figure 1: When viewing the smile, create a mental image of the results using smile design principles.



Figure 2: This trial smile consists of composite placed on teeth ##6-11, adding fullness and length; and over the tissue above ##7-9.

building trust and in understanding the degree of importance of the patient's perceived problems.¹

The next step is co-discovery of esthetic and dental health issues, which can be enhanced by utilizing digital photography. I use these views displayed on a chairside monitor to aid in the co-discovery process: Full-face, frontal and profile, 1:2 frontal and lateral smile, 1:2 retracted frontal and lateral, and upper and lower occlusal shots.

After listening to the patient's concerns, followed by co-discovery, the clinician informs the patient that the trial smile is a communication tool that enables both parties to envision the end result, and to understand the options available to achieve the desired outcome. During the trial smile, the clinician temporarily places composite resin on unprepared teeth, then photographs and impresses the composite in the mouth so as to fabricate a trial smile model of the confirmed contours and incisal edge position. The trial smile experience also educates the patient about smile design as well as dental health and occlusal concepts, increasing their appreciation and desire for esthetic and functional

dentistry. I use the following guidelines for a successful trial smile.

TRIAL SMILE GUIDELINES

- Take preoperative digital photographs.
- Discuss with the patient his or her esthetic concerns and pertinent dental health issues that are visible in the photographs; explain the concept of the trial smile. It is important to note the relationship of the incisal edges to the lower lip in the lateral smile and profile views in order to determine if the patient can tolerate addition fullness. If the patient is already too full and protrusive, a computer-generated image may be more effective. Case selection is the key to success.
- View the digital images and create a mental image of the desired results using macroesthetic smile design principles² (Figs 1 & 2).
- Dry the patient's teeth completely and apply the composite, beginning with the central incisors. Do not etch or bond the teeth. Place composite over tissue in areas that will require gingival recontouring or crown lengthening.
- Shape, then cure and sculpt the cured composite using discs and finishing burs. Magnification is helpful to ensure that the underlying tooth structure is not affected during this finishing process.
- Confirm that the incisal edges touch inside of the dry line on the patient's lower lip in repose and smiling positions; check the patient's comfort, speech, and protrusive guidance.
- Measure the central incisors with a Boley gauge; most teeth will measure 10 mm to 12 mm in height. Check the length in both smiling and repose positions with digital photography to confirm appropriateness. In addition, an average width of the central incisors is 8 mm to 9 mm. During the measurement process, I explain to the patient that in the most attractive smiles, the central incisors are 1/16th the height and the width of the face; consequently, smile design includes harmonious proportions.
- Once the centrals are proportional and the incisal edges fit

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Figure 3: It is more effective for the patient to view the full-face “before” and “after” images on a chairside monitor than with a hand mirror, because then he or she can see the smile enhancement in the context of the entire face.

comfortably within the lower lip, add composite to the canines to fit them within the frame of the smile (using the lips as your guide), and to create cuspid-protected occlusion if desired.

- Fill in the lateral incisors to create esthetic line angles, and fill out the buccal corridors as necessary.
- Remove any excess composite from the lingual aspect to achieve complete intercuspation so that it feels normal and natural to the patient.
- Recheck the incisal plane in relation to the lower lip during speech, repose, and smiling. Use flat plane aids in leveling the smile. However, the lips are the main guide; I ask the patient to smile and count several times during the trial smile fabrication in order to

harmonize the incisal edges with the lower lip.

- View the patient from a frontal perspective, then take postoperative digital images to show to the patient on a chairside monitor. At this point, the results can be confirmed or refined. The results are then photographed again. The full-face photograph is superior to a mirror because the patient can view the smile enhancement within the context of the entire face (Fig 3).
- Print preoperative and postoperative photographs for the patient to take home.
- Take a bite registration and an impression in order to incorporate the trial smile into diagnostic records (Fig 4).
- Discuss treatment options with the patient.
- Remove the composite with a scaler.

THE TECHNICAL ADVANTAGES

Because the relationship of the lips and the teeth is affected by the posture of the mandible during speech and when smiling, diagnostic wax-ups preformed on articulated casts using digital photography as a guide are a hypothesis of the most advantageous incisal edge position. On the other hand, the trial smile model has been confirmed in the patient’s mouth during speech, smiling, and repose. The following parameters of the lips reveal the most accurate and esthetic incisal edge position and facial contours:

- During speech, especially “F” sounds, the incisal edge should not contact the dry zone of the lip and should feel comfortable to the patient.
- In repose, the incisal edge position affects the lower lip position, which is best viewed in a profile (lips in repose) view.



Figure 4: The trial smile model mounted on an articulator in order to finalize the functional plan.

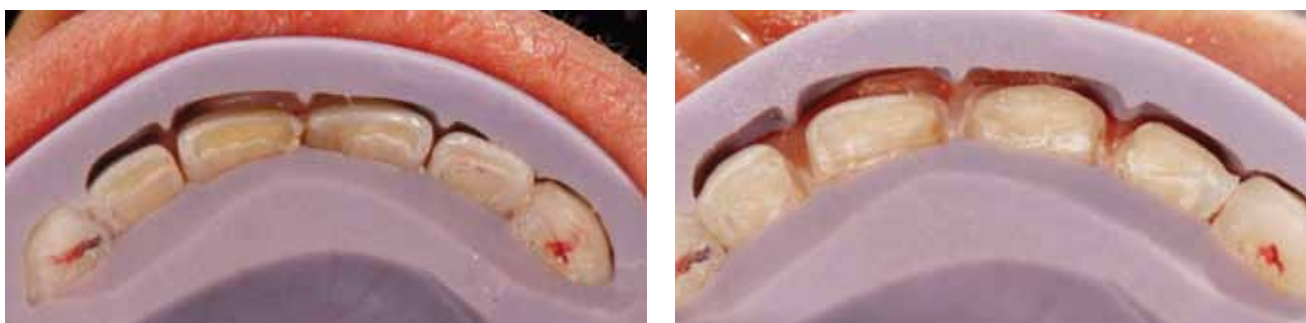


Figure 5: This matrix, which was fabricated on the trial smile model, allows the clinician to visualize the final contours before preparing the teeth. More uniform thickness of porcelain and conservative preparations can then be better accomplished.

Also, the upper lip is affected by the facial contours, which are also best viewed from the profile; in addition, lip competency can be observed.

- The smiling position varies with mandibular posturing. Because of this, the patient is the best judge of how the incisal edges feel during smiling and laughing.

By confirming facial contours and incisal edge position in the mouth *before* the teeth are prepared, the clinician can confidently conserve tooth structure using a preparation guide created on the refined trial smile model (Fig 5). Because bonding to enamel is the most superior technique,³ preserving enamel is

ideal, and the optimal incisal edge position becomes a crucial factor.

In addition, the gingival line can be altered during the trial smile by placing the composite on the tissue or by using pink composite to add tissue. Digital images can then confirm the optimal tissue height, using the upper lip as a guide. A surgical guide can then be fabricated from the trial smile model to aid the surgeon during crown lengthening, if surgery is determined to be necessary. Measuring the height of the composite that is applied over the tissue and sounding the bone gives the clinician vital information needed to determine the need for crown lengthening and/or tissue augmentation.

In this case, the clinician measured a 1-mm overlap of the composite over the tissue during the trial smile (Fig 6). In addition, the sulcus was determined to be 3 mm in depth (Fig 7). Consequently, crown lengthening was not necessary, and a gingivectomy was performed to accomplish the gum lift (Fig 8).

THE BEHAVIORAL ADVANTAGE

With postoperative explanation about the areas in which the composite has been placed and sculpted, the patient will begin to understand such things as height-to-width ratios, negative space, occlusal plane, gingival line, lip support, and anterior guidance. This hands-on process

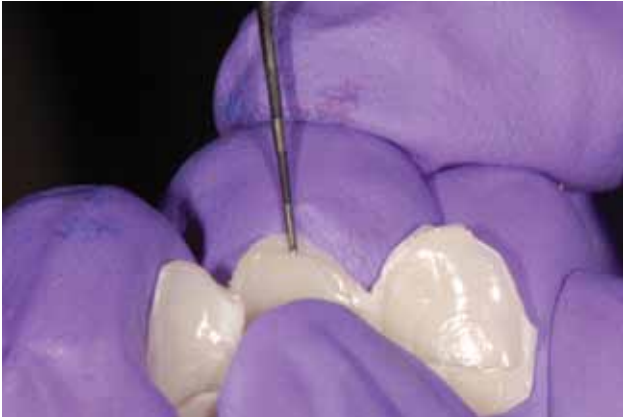


Figure 6: The trial smile composite overlapped the tissue by 1 mm.



Figure 7: The sulcus is 3 mm; therefore, a gingivectomy was performed on teeth #7-9.



Figure 8: Preoperative and postoperative; retracted 1:2 view showing the result of the gum lift.

also creates trust and confidence and eliminates the fear of the unknown.

In many cases, once the patient has seen the enhanced smile, hope is instilled, and the patient perceives the dentist as a facilitator to achieving his or her desired goal. Clinicians must be prepared for the patient to ask such questions as, "How long will it take? How much will it cost? When can we start?" Providing answers to these questions helps the patient acquire the additional information necessary in making his or her decision to proceed with the treatment.

In other words, the dental team can address the patient's concerns, build value, and summarize benefits before quoting fees.

Another advantage of the trial smile experience is that it gives the clinician and team valuable insight as to the patient's expectations. Since some patients have preconceived ideas about the esthetic characteristics of their teeth and smile, the trial smile experience allows the clinician to understand the patient's expectations and discuss limitations more clearly before treatment.

HELPFUL SUGGESTIONS

The following steps are helpful when introducing the trial smile experience into a busy practice:

- Allow plenty of time to first understand the patient's needs and desires.
- Practice using composite on stone models.
- Practice performing the trial smile on team and family members, mastering smile design principles and reading the lips.



Figure 9: The final restorations include bonding on the cuspids and porcelain veneers on teeth ##7-10 made by Brad Patrick, BSc.

- Use digital photography and an impression to record and confirm the trial smile
- Allow time afterwards to answer the patient's questions about treatment.

SUMMARY

The trial smile experience has become an invaluable tool in my practice from both technical and behavioral aspects. Patients and the team describe it as a bonding experience that creates trust and confidence and eliminates fear. In addition, it confirms the outline form for the diagnostic wax-up that has been confirmed in the mouth, and is consequently more accurate and reliable than the hypothesis wax-up that is not confirmed in the mouth.

The difference can be critical when preparing the teeth to preserve enamel (Fig 5). After preparation and/or temporization, the provisionals should be further confirmed over time and customized functionally and esthetically.⁴ The trial smile experience is an educational opportunity for the patient, the clinician, and the team, and builds value for the patient while ensuring a more successful outcome (Fig 9).

AACD Acknowledgment

The American Academy of Cosmetic Dentistry recognizes Dr. Susan Hollar as an AACD Accredited Member (AAACD), Accreditation Examiner, and Give Back A Smile™ volunteer who has restored the smiles of two GBAS survivors.

References

1. Bakeman B. Comprehensive restorative dentistry: increasing patient acceptance. Aesthetics: AACD monograph. Mahwah, (NJ): Montage Media; 2006.
2. Morley J, Eubank J. Macroesthetic elements of smile design. JADA. 2001; 132(1):39-44.
3. McLaren EA. Porcelain veneer preparations: to prep or not to prep. Inside Dent. 2006 May;76-79.
4. Fondriest J. Utilizing provisional restorations to improve results in complex aesthetic restorative cases. PPAD. 2008; 18(4):217-223.



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GIVE BACK A SMILE™

IN THIS SECTION:

A LIFE AND A SMILE RESTORED ❖ BY RYAN HAUPT, BA AND JOE WYNNE, BA.....43

A LIFE AND A SMILE RESTORED



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The AACD Charitable Foundation's Give Back A Smile™ (GBAS) program restores the smiles of domestic violence survivors at no cost.

We have received many success stories and thanks from GBAS volunteers and recipients. This section shares the triumphs of the GBAS program.

INTRODUCTION

In May of 2008, a female patient was referred to Dr. Elizabeth Bakeman's Grand Rapids, Michigan, dental office as a candidate for the Give Back A Smile™ (GBAS) program. In 1979, her then-husband had struck her in the face, severely damaging her maxillary anterior teeth, breaking her nose, and ripping off part of an eyebrow. She underwent restorative dental treatment and received a fixed partial denture (FPD) spanning teeth #6-11. Six months later, her husband struck her again, damaging the porcelain (Figs 1 & 2). The husband later died as a result of his long history of alcohol abuse, freeing the patient from the mental and physical abuse he had inflicted on her and allowing her to remarry.

In September of 2005, while she was in remission from chemotherapy to treat cancer that had metastasized to her brain, a group of friends, including the pastor at her church, began searching for ways to help her. They came across the GBAS program, which referred her to Dr. Bakeman, a participating doctor who happened to practice right in her back yard.



Figure 1: Preoperative full-facial view showing the extent of the patient's condition as a result of her abuse, as well as her esthetically displeasing smile.

CLINICAL EVALUATION AND DIAGNOSIS

At the time of the initial trauma, teeth #8 and #9 were avulsed, and teeth #5, #6, #7, #10, and #11 were damaged. In addition, there had been tissue damage to the interproximal region between #24 and #25 (Figs 3-5). The maxillary anterior had been restored with a porcelain-fused-to-gold bridge that was damaged by her abusive husband shortly after placement. The damage sustained to the porcelain was repaired short term with composite bonding that had since broken down, leaving the patient with a strong desire for a new restoration that was functional and esthetic.

During the initial consultation, the patient was very withdrawn and timid. She would not open her mouth unless it was necessary and preferred to let her new husband communicate for her. She expressed concerns about the metal framework showing, as well as the shape of the composite restorations, which

she stated were overly pronounced, appearing "bucked."

Dr. Bakeman wanted to provide this patient with pre-eminent esthetics and function, so she sought an AACD Accredited ceramist. After consulting with Lisa Fitch at the American Academy of Cosmetic Dentistry Charitable Foundation (AACDCF) about Accredited ceramists who participate in the GBAS program, Erik Haupt, head ceramist of Haupt Dental Lab, was chosen.

TREATMENT PLAN

The initial consultation indicated that the patient would require at least the replacement of the previous FPD, as well as inlays for select teeth to restore proper function. Due to the heavy functional forces placed on the anterior teeth, a metal lingual was designed for the FPD to further increase the long-term prognosis of the final restoration.

TREATMENT

After the consultation appointment, models were sent to the laboratory to be waxed up. The wax-up was fabricated to mimic the final restorations as closely as possible. This allowed the patient to "test-drive" her smile while in provisionals and communicate any changes she wanted made in the definitive restorations. During this time, she became reacquainted with proper anterior coupling, desirable incisal length and esthetics, and proper labial anatomy (Fig 6).

The patient underwent root planing and periodontal scaling to address the gingival recession between teeth #24 and #25 and was placed on a three-month recall schedule to maintain tissue health (Figs 7-9). At the next recall appointment, the patient confirmed that the provisionals were exactly what she desired, and a study model of those provisionals and photographs of the patient in the provisionals were sent to the

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Figure 2: Preoperative view of the patient's smile.



Figure 3: Intraoral view of the damaged crowns on teeth #6 and #7.



Figure 4: Intraoral view showing the failing composite repair on teeth #8 and #9.



Figure 5: Intraoral view showing the exposed margins of the pre-existing PFM restoration and its less-than-optimal esthetics.

laboratory so that the restoration could be fabricated.

An incisal matrix was made from this mounted model to guide the design of the metal framework, ensure proper porcelain support, and still allow the restoration to exhibit a natural appearance. As with any cosmetic case, including the study model and photographs was essential to the success of this case, since they provided a reference to any changes that could potentially be required.

SEATING APPOINTMENT

Dr. Bakeman delivered the final restoration without any problems, and the occlusion was verified (Figs 7-11). The ceramics blended beautifully with the surrounding dentition and integrated well with the soft tissues (Figs 10 & 11). Careful attention to the pontic sites at #8 and #9 during her provisionalization provided the opportunity to develop optimum emergence contours and create proximal papillae.

While wearing the provisionals, the patient slowly began opening

up—smiling brightly, interacting, and carrying on full conversations with the dental staff and other patients. This was in stark contrast to her previous behavior, when she communicated her wants and needs only through her husband.

After the delivery of the final prosthesis, the patient was thrilled with the natural esthetics of the restorations, saying that she had no idea they would look so good. When treatment was complete, the patient and her husband sent a very touching “thank you” letter to the offices of Dr. Bakeman and Mr. Haupt, stat-



Figure 6: The patient wearing her approved provisional restorations.



Figure 7: Postoperative intraoral view of the completed FPD after placement. Note the improved tissue health resulting from ongoing maintenance appointments.



Figure 8: Postoperative intraoral view of the patient's new FPD, demonstrating improved esthetics.



Figure 9: Postoperative intraoral view of the patient's restoration demonstrates a vast improvement in her smile compared to the old, damaged restoration.



Figure 11: View of the patient's smile after her restoration was placed.



Figure 10: This postoperative view shows the overall enhancement to the patient's appearance that resulted after her new bridge was placed.

ing that her beautiful smile was a result of the combined mastery of dentistry and ceramics demonstrated by their teamwork. The patient's husband said *"it was the most amazing experience that any dental patient could ever have or could ever hope for. Everyone was so kind, so welcoming, and so amazingly thorough."*

DISCUSSION

Today, the patient eagerly looks forward to each dental appointment. What started as a bleak diagnosis of terminal cancer that one oncologist had deemed inoperable—giving her two years to live, if she was lucky—has given way to a patient in full remission with a reconstructed smile, all the result of confident patient care. During her latest trip to her current oncologist, the doctor remarked that it is truly *"a miracle that she is alive."*

Our patient has been given information regarding Face to Face, a program very similar to GBAS that is conducted by the American Academy of Facial Plastic and Reconstructive Surgery (<http://www.facetofacesurgery.org>). Should she choose to undergo surgery to address the damage done to her nose or eyebrow, they, too, will provide a talented doctor to tend to her needs.

CONCLUSION

As a result of the amazing teamwork that this patient has been blessed with—in the treatment of her cancer, from her friends in finding a solution to restore her smile, and from those who provided her dental restoration—she also has had her love of life restored. She will readily refer others to Dr. Bakeman and the GBAS program, thanks to her wonderful experience.

The knowledge that you have helped a person recover from unimaginable hardship is reward enough, but to have that person speak so highly of the process and know that they consider themselves blessed is a genuine gift. Participating in the AACDCF's Give Back A Smile program is truly a wonderful experience. Anyone who takes part in any of the programs conducted by the AACDCF will be greatly enriched. It is, after all, in giving that we truly receive. As the motto says, *"Be More. Give More."*

AACD Acknowledgments

The American Academy of Cosmetic Dentistry acknowledges Mr. Erik Haupt as an Accredited ceramist (AAACD), and Dr. Elizabeth Bakeman as an Accredited Fellow Member (FAACD) and Accreditation Examiner.



ACCREDITATION ESSENTIALS

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INTRODUCTION TO ACCREDITATION ESSENTIALS



by Edward Lowe, DMD, AACD
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"To be conscious that you are ignorant is a great step to knowledge."

—Benjamin Disraeli

The journey to success in Accreditation by the American Academy of Cosmetic Dentistry requires demonstration of excellent clinical skills in cosmetic dentistry. The five case types required for demonstration of these skills have been the same since 1987, when the original Accreditation Committee set the policy. The current credentialing board, the American Board of Cosmetic Dentistry, has refined the parameters of the examination process to ensure its validity and fairness, yet the skills to be demonstrated and the testing standards have remained unchanged.

How does one acquire the skills needed for demonstration of excellence? When my ceramist and I first met he showed me some of his cases and mentioned the courses he had taken. Being a bit embarrassed about my

lack of knowledge, I simply took his word for his expertise. When my cases were returned, I often knew things did not look right but did not know why. I was frustrated with my own ignorance but had too much pride to take action. I needed some help.

Leaving my ego at the door and seeking assistance in my education was the first step to my becoming a better cosmetic dentist. I learned not to be afraid to ask for help from dentists who were Accredited and more accomplished than I. Many of them were extremely generous in sharing their knowledge. This unselfish willingness to help is truly one of the great characteristics of AACD members. Being able to know what I was looking for gave me the ability to deliver Accreditation-level dentistry. Participating in didactic and hands-on education programs

are also instrumental in helping one to excel in cosmetic dentistry.

Ask yourself...do you want to be an average dentist or an exceptional cosmetic dentist? I recommend that you study the *AACD Guide to Accreditation Criteria* and the *AACD Guide to Accreditation Photography*. Both can be ordered on the AACD Web site as a package for only \$30 (U.S.) and they are valuable resources. They will provide you with greater growth in your abilities on your journey to achieving Accreditation in the AACD. The AACD's Annual Scientific Session also has many courses for dentists and technicians at all levels. The reader is encouraged to attend and to take advantage of the many educational offerings there.

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- 1 Median time to recovery was reduced by 85 minutes (55%) for lower lip and by 83 minutes (62%) for upper lip compared to control.
- 2 OraVerse is not recommended for use in children less than 6 years of age or weighing less than 33 lbs.

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OraVerse is not recommended for use in children less than 6 years of age or weighing less than 15 kg (33 lbs).

2. DOSAGE AND ADMINISTRATION

2.1 General Dosing information

The recommended dose of OraVerse is based on the number of cartridges of local anesthetic with vasoconstrictor administered:

Amount of Local Anesthetic Administered	Dose of OraVerse [mg]	Dose of OraVerse [Cartridge(s)]
½ Cartridge	0.2	½
1 Cartridge	0.4	1
2 Cartridges	0.8	2

OraVerse should be administered following the dental procedure using the same location(s) and technique(s) (infiltration or block injection) employed for the administration of the local anesthetic. Note: Do not administer OraVerse if the product is discolored or contains particulate matter.

2.2 Dosing in Special Populations

In pediatric patients weighing 15-30 kg, the maximum dose of OraVerse recommended is 1/2 cartridge (0.2 mg).

(Note: Use in pediatric patients under 6 years of age or weighing less than 15 kg (33 lbs) is not recommended. A dose of more than 1 cartridge [0.4 mg] of OraVerse has not been studied in children less than 12 years of age.)

3. DOSAGE FORMS AND STRENGTHS

0.4 mg/1.7 mL solution per cartridge

4. CONTRAINDICATIONS

None

5. WARNINGS AND PRECAUTIONS

5.1 Cardiovascular Events

Myocardial infarction, cerebrovascular spasm, and cerebrovascular occlusion have been reported to occur following the parenteral administration of phentolamine. These events usually occurred in association with marked hypotensive episodes producing shock-like states. Tachycardia and cardiac arrhythmias may occur with the use of phentolamine or other alpha-adrenergic blocking agents. Although such effects are uncommon after administration of OraVerse, clinicians should be alert to the signs and symptoms of these events, particularly in patients with a prior history of cardiovascular disease.

6. ADVERSE REACTIONS

In clinical trials, the most common adverse reaction with OraVerse that was greater than the control group was injection site pain.

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice. Dental patients were administered a dose of either 0.2, 0.4 or 0.8 mg of OraVerse. The majority of adverse reactions were mild and resolved within 48 hours. There were no serious adverse reactions and no discontinuations due to adverse reactions.

Adverse Event	OraVerse			Total (N = 418)	Control (N = 359)
	0.2 mg (N = 83)	0.4 mg (N = 284)	0.8 mg (N = 51)		
	N (%)	N (%)	N (%)		
Patients with AEs	15 (18)	82 (29)	20 (39)	117 (28)	96 (27)
Tachycardia	0 (0)	17 (6)	2 (4)	19 (5)	20 (6)
Bradycardia	0 (0)	5 (2)	2 (4)	7 (2)	1 (0.3)
Injection site pain	5 (6)	15 (5)	2 (4)	22 (5)	14 (4)
Post procedural pain	3 (4)	17 (6)	5 (10)	25 (6)	23 (6)
Headache	0 (0)	10 (4)	3 (6)	13 (3)	14 (4)

Table 1 lists adverse reactions where the frequency was greater than or equal to 3% in any OraVerse dose group and was equal to or exceeded that of the control group. An examination of population subgroups did not reveal a differential adverse reaction incidence on the basis of age, gender, or race. Results from the pain assessments in Study 1 and Study 2, involving mandibular and maxillary procedures, respectively, indicated that the majority of dental patients in both OraVerse and control groups experienced no or mild oral pain, with less than 10% of patients in each group reporting moderate oral pain with a similar distribution between the OraVerse and control groups. No patient experienced severe pain in these studies.

6.2 Adverse Reactions in Clinical Trials

Adverse reactions reported by less than 3% but at least 2 dental patients receiving OraVerse and occurring at a greater incidence than those receiving control, included diarrhea, facial swelling, increased blood pressure/hypertension, injection site reactions, jaw pain, oral pain, paresthesia, pruritus, tenderness, upper abdominal pain and vomiting. The majority of these adverse reactions were mild and resolved within 48 hours. The few reports of paresthesia were mild and transient and resolved during the same time period.

6.3 Post Marketing Adverse Reaction Reports from Literature and Other Sources

The following adverse reactions have been identified during postapproval parenteral use of phentolamine mesylate. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure. Acute and prolonged hypotensive episodes and cardiac arrhythmias have been reported with the use of phentolamine. In addition, weakness, dizziness, flushing, orthostatic hypotension, and nasal stuffiness have occurred.

7. DRUG INTERACTIONS

There are no known drug interactions with OraVerse.

8. USE IN SPECIFIC POPULATIONS

8.1 Pregnancy Pregnancy Category C

There are no adequate and well-controlled studies in pregnant women. OraVerse should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

8.4 Pediatric Use

In clinical studies, pediatric patients between the ages of 3 and 17 years received OraVerse. The safety and effectiveness of OraVerse have been established in the age group 6-17 years. Effectiveness in pediatric patients below the age of 6 years has not been established. Use of OraVerse in patients between the ages of 6 and 17 years old is supported by evidence from adequate and well-controlled studies of OraVerse in adults, with additional adequate and well-controlled studies of OraVerse in pediatric patients ages 12-17 years old [Studies 1 (mandibular procedures) and 2 (maxillary procedures)] and ages 6-11 years old [Study 3 (mandibular and maxillary procedures)]. The safety, but not the efficacy, of OraVerse has been evaluated in pediatric patients under the age of 6 years old. Dosages in pediatric patients may need to be limited based on body weight.

10. OVERDOSAGE

No deaths due to acute poisoning with phentolamine have been reported.

Overdosage with parenterally administered phentolamine is characterized chiefly by cardiovascular disturbances, such as arrhythmias, tachycardia, hypotension, and possibly shock. In addition, the following might occur: excitation, headache, sweating, pupillary contraction, visual disturbances, nausea, vomiting, diarrhea, or hypoglycemia. There is no specific antidote; treatment consists of appropriate monitoring and supportive care. Substantial decreases in blood pressure or other evidence of shock-like conditions should be treated vigorously and promptly.

14. CLINICAL STUDIES

The safety and efficacy of OraVerse when used for reversal of soft-tissue anesthesia (STA), i.e., anesthesia of the lips and tongue following a dental procedure that required local anesthesia containing a vasoconstrictor, were evaluated in the following clinical studies. OraVerse induced reversal of local anesthetic effects on the teeth, mandible and maxilla has not been assessed.

Two Phase 3, double-blinded, randomized, multi-center, controlled studies were conducted in dental patients who had mandibular (Study 1) or maxillary (Study 2) restorative or periodontal maintenance procedures and who had received a local anesthetic that contained a vasoconstrictor. The primary endpoint was time to normal lip sensation as measured by patient reported responses to lip palpation. The secondary endpoints included patients' perception of altered function, sensation and appearance, and their actual functional deficits in smiling, speaking, drinking and drooling, as assessed by both the patient and an observer blinded to the treatment. In the mandibular study, the time to recovery of tongue sensation was also a secondary endpoint. Patients were stratified by type and amount of anesthetic administered.

OraVerse was administered at a cartridge ratio of 1:1 to local anesthetic. The control was a sham injection. OraVerse reduced the median time to recovery of normal sensation in the lower lip by 85 minutes (55%) compared to control. The median time to recovery of normal sensation in the upper lip was reduced by 83 minutes (62%).

In Study 1 (mandibular), OraVerse accelerated: a) the recovery of the perception of normal appearance and function by 60 minutes (40%), b) the recovery of normal function by 60 minutes (50%), and c) the recovery of normal sensation in the tongue by 65 minutes (52%). In Study 2 (maxillary), the recovery of the perception of normal appearance and function was reduced by 60 minutes (50%) and the recovery of normal function was reduced by 45 minutes (43%).

Study 3, a pediatric, Phase 2, double-blinded, randomized, multi-center, controlled study was conducted in dental patients who had received 2% lidocaine with 1:100,000 epinephrine. Dental patients (n = 152, ages 4-11 years) received ½ cartridge of local anesthetic if they weighed ≥15 kg but <30 kg, and one-half or one full cartridge if they weighed ≥30 kg at a cartridge ratio of 1:1 to local anesthetic.

The median time to normal lip sensation in patients 6 to 11 years of age who were trainable in the lip-palpation procedures, for mandibular and maxillary procedures combined, was reduced by 75 minutes (56%). Within 1 hour after administration of OraVerse, 44 patients (61%) reported normal lip sensation, while only 9 patients (21%) randomized to the control group reported normal lip sensation. In this study, neither the patients' perception of their appearance or ability to function nor their actual ability to function was evaluated.

16. HOW SUPPLIED/STORAGE AND HANDLING

OraVerse (phentolamine mesylate) Injection 0.4 mg/1.7 mL is supplied in a dental cartridge, in cartons of 10 and 50 cartridges. Each cartridge is individually packaged in a separate compartment of a 10 cartridge blister pack.

NDC 45293-101-01

NDC 45293-101-02

Store at controlled room temperature, 20-25°C (68-77°F) with brief excursions permitted between 15-30°C (59-86°F) Protect from direct heat and light. Do not permit to freeze.

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For Novalar Pharmaceuticals, Inc., San Diego, CA 92130

US Patent Nos.: 6,764,678; 6,872,390; 7,229,630

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17. PATIENT COUNSELING INFORMATION

Patients should be instructed not to eat or drink until normal sensation returns.

Gesica Horn as she shows how she managed functional esthetics in her Case Type I: Six or More Indirect Restorations.

Case Type I demonstrates the clinician's ability in directing the ceramist to produce a composition that is both esthetic and functional. It requires placing six or more indirect restorations in the maxillary anterior region, treating upper incisors and canines. Smile design elements will be of greater significance in these cases as the overall appearance and health of the definitive composition is taken into consideration. Dr. Horn takes a patient with occlusal dysfunction and successfully treats him with 10 porcelain veneers. Note that the patient is not only another dentist but her husband as well. You will agree that she handled the pres-

sure well in successfully completing this case type.

Dr. Rebecca Pitts gives us the examiners' perspective on this case and provides us with constructive feedback on what was done well and what could have been improved. It gives Accreditation members in the process an opportunity to look at the cases through the examiners' eyes. Faults will invariably exist in all cases and it is from study of these minor faults that we all reap major benefits from an educational standpoint.

In this issue we also feature an interview with Dr. Jimmy Eubank conducted by my co-editor Dr. James Hastings. Dr. Eubank is a past Accreditation Chair who standardized the 12 photographic views that we use today and who

created the first *AACD Guide to Accreditation Photography*. We are all grateful to Dr. Eubank for his many contributions to the Academy and to the profession.

Congratulations again to Dr. Horn on her successful Accreditation case. It is the passion and effort of members who are willing to unselfishly share their journey with us that keeps Accreditation Essentials such a valuable part of our Journal.



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ACCREDITATION CLINICAL CASE REPORT—CASE TYPE I: SIX OR MORE INDIRECT RESTORATIONS



by Gesica T. Horn, DDS
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INTRODUCTION

One of the most challenging aspects of going through the Accreditation process is trying to find the “right” case. The best piece of advice you often hear from Accreditation mentors is that it is all about case selection.¹ Sometimes these “right” cases are closer to us than we realize. The patient I had selected prior to the one discussed here had excellent gingival health. However, after a comprehensive esthetic evaluation, it was determined that the gingival elements were not ideal. My husband, who also is a dentist, just happened to have my “right” case—in his own mouth. Knowing that his smile had been ravaged by occlusal disease, he agreed for me to treat his teeth.

PATIENT HISTORY AND CHIEF COMPLAINT

The 36-year-old patient was in excellent health. He had had previous orthodontic treatment that had relapsed. Tooth #8 had some composite remnants from previous restorative treatment. This tooth fractured when the patient was a teenager and it had been restored numerous times since. He was getting tired of this repetitive routine and was looking at a long-term strategy for his dental health. Since discovering he had been suffering from occlusal disease (Fig 1), he wanted the posterior interferences and excessive wear to be addressed.

CLINICAL EVALUATION AND DIAGNOSIS

The patient presented with normal temporomandibular joints; however, there was tension upon palpation of right and left masseter and temporalis muscles. After placing the patient in centric relation (CR) with bimanual manipulation, CR was confirmed by a negative load test of the joints.² Posterior interferences were noted on the patient’s right first molars with an anterior slide into maximum intercuspation. The patient had a Class I occlusion with a CR-centric occlusion shift. There was extensive incisal/occlusal wear on teeth

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Figure 1: Smile, 1:2 view. Preoperative; severely worn upper anterior teeth. Postoperative; completed treatment restoring wear.



Figure 2: Retracted 1:2 view. Preoperative; narrow buccal corridor. Postoperative; completed treatment, widened buccal corridor.

##4-13, as well as lingual wear on ##6-11, which had led to inadequate anterior guidance. He was not aware of any nocturnal bruxism habits, which I confirmed. The patient also had some anterior crowding. We wanted to widen his buccal corridor in order to broaden his smile (Fig 2), as well as lighten the shade of his teeth. Even though the patient's gingival health was excellent, we agreed that from an esthetic standpoint, the gingival arrangement was not ideal.

TREATMENT PLAN

Orthodontic treatment was presented as part of the treatment plan as an option to reduce anterior crowding and eliminate the posterior interferences. Since the patient had already been through orthodontics, he did not want to go in that direction. We determined that we could address his esthetic and functional concerns by equilibrating and restoring ##4-13 with all-ceramic bonded restorations. In order to improve the gingival esthetics and tooth proportions, we agreed that ##4-13 should re-

ceive crown-lengthening treatment (Fig 3). (Once anterior guidance is established, we plan to restore ##22-27 with all-ceramic bonded restorations and crown lengthen ##22-26.) The patient would whiten his teeth with custom trays and take-home whitening gel.

TREATMENT DESCRIPTION

Treatment began with two equilibration sessions to eliminate the posterior interferences before restorative treatment could relieve the rest. The patient then saw the periodontist for crown lengthening and gingi-

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Figure 3: Retracted 1:1 view. Preoperative; gingival heights coronal from the ideal height. Postoperative; gingival heights corrected after crown-lengthening surgery.

val contouring of ##4-13. Changing the gingival architecture of ##23-26 will be done at a later date. After six months of healing, new models and bite records were taken. The case was remounted in CR and diagnostically waxed to ideal contours and occlusion for proper esthetic and functional results. The patient then bleached using an at-home whitening system and custom trays.

PREPARATION APPOINTMENT

On preparation day, the patient was anesthetized using buccal infiltration. A diode laser was used to touch up the gingival contour, specifically #7 and #10, in order to achieve a more ideal gingival architecture. Teeth ##4-13 were prepared for all-ceramic bonded restorations with minimal tooth reduction.³ A .5-mm depth cut bur was used to ensure proper reduction in the mid-facial area. About .3 mm of reduction was done along the gingival portion of the teeth with minimal incisal reduction. The preparations were extended onto the lingual surfaces of the anterior teeth in order to restore the wear and give proper anterior guidance. On the bicuspids, the

preparations extend about midway onto the occlusal surfaces to also restore the wear. We refined the equilibration of the rest of his occlusion to gain ideal centric stops. A polyvinyl impression was taken using a custom tray. A polyvinyl bite registration was taken in maximum intercuspation, and a facebow record was taken for mounting models on the articulator. Direct provisionals utilizing a bleach shade provisional material were fabricated using a Sil-Tech putty form (Ivoclar Vivadent; Amherst, NY) from the diagnostic wax-up.⁴ The provisionals were polished and cemented. Preoperative mounted models, preoperative photographs, final impression, new opposing model, and clinical photographs were sent with the facebow and bite registration to the laboratory. The ceramist and I met before, during, and after the preparation appointment to decide on ceramic materials and preparation design.

FOLLOW-UP AND ADJUSTMENT

The patient returned one week later to evaluate function in his provisionals, gingival healing, and esthetics. We both agreed the occlusal

function needed to be adjusted slightly. After adjustment and the patient's approval of the esthetics, a new polyvinyl impression and photographs were taken and sent to the ceramist.⁵

TRY-IN APPOINTMENT

The patient returned three weeks after preparation for the try in. The restorations were tried in with RelyX transparent try-in paste (3M ESPE; St. Paul, MN). The cusp tip of #5 was too long, so the ceramist made the necessary adjustment. After patient approval, the teeth were isolated with a rubber dam and an Opra-Gate retractor (Ivoclar Vivadent). The preparations were total-etched, desensitized using Systemp. (Ivoclar Vivadent) and coated with two generous layers of Single Bond Plus adhesive (3M ESPE). The restorations were cemented with RelyX veneer cement in a translucent shade by a tack bond followed by a wave over the buccal and lingual surfaces. Excess cement was removed and teeth were flossed interproximally, followed by a 20-second final cure on the buccal and lingual surface of each restoration. Minor occlusal ad-

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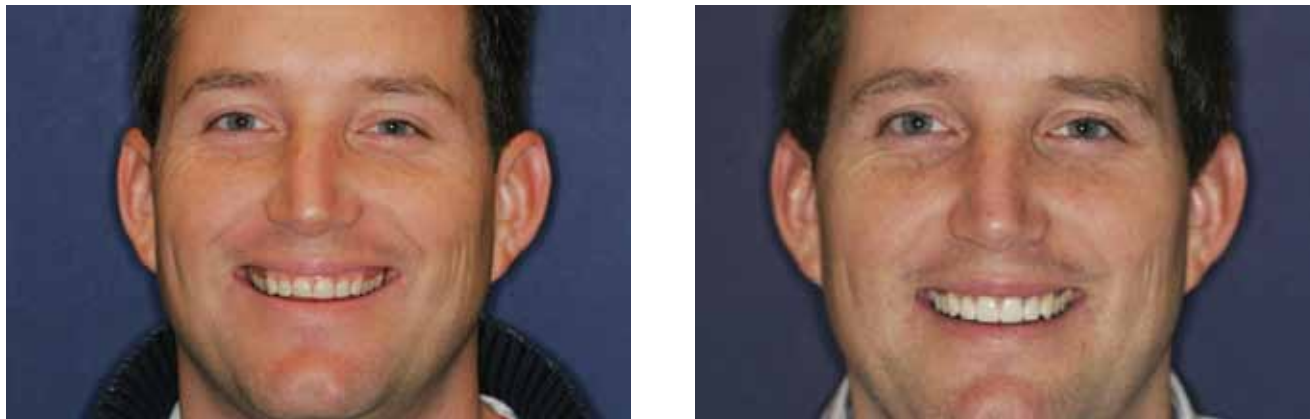


Figure 4: Full-face 1:10 view. Preoperative; anterior teeth appear small in proportion to the face. Postoperative; fuller, longer teeth are more proportionate to other facial features.

adjustments were made using Bausch (Nashua, NH) Arti-Check occlusion paper, shimstock, and a fine football-shaped diamond. A finishing sequence was performed with a high-speed handpiece and a fine diamond bur on the occlusal and lingual surfaces, a pointed finishing bur on the facial margins, and a series of interproximal strips to remove any excess cement. Diashine porcelain polishing paste (VH Technologies; Bellevue, WA) was used over the areas of adjustments.⁶

CONCLUSION

Future appointments are set to restore ##22-27, but occlusion is now stable in order to ensure proper function until then. My husband is thrilled with the result, especially

with how natural the restorations look and feel. He is now able to have a special connection with his patients when he recommends similar treatment. His portrait hangs on a wall in my office and it is wonderful to hear my patients comment on his great smile (Fig 4)!

Acknowledgments

The author gives special thanks to Dr. John Rieke (Shoreview, MN), for the crown-lengthening surgery and periodontal care; as well as to Edgar Jimenez Dental Studio (North Oaks, MN) for the beautiful porcelain restorations. She is also very grateful to her husband for allowing her to treat his dental needs, as well as for his support as she goes through the Accreditation process.

References

1. Blitz N, Steel C, Willhite C. Diagnosis and treatment of evaluation in cosmetic dentistry—a guide to Accreditation criteria. Madison (WI): American Academy of Cosmetic Dentistry; 2001.
2. Dawson PE. Functional occlusion, from TMJ to smile design. St. Louis (MO): Mosby; 2007.
3. Cha JY. Accreditation clinical case report, Case Type I: six or more indirect restorations. JCD. 2009 Winter;24(4):46-50.
4. Hornbrook Group. Functional anterior course. September 2005; Ft. Lauderdale, FL.
5. Dawson Center. Functional esthetics seminar two. November 2005; St. Petersburg, FL.
6. Milner DS. Accreditation clinical case report, Case Type I: six or more indirect restorations. JCD. 2007 Spring;23(1):68-74.



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EXAMINERS' PERSPECTIVE FOR DR. GESICA HORN



by Rebecca Pitts, DMD, FAACD
Lake Mary, FL
www.drrebeccapitts.com

Almost all items in the Accreditation Examination Criteria* play a role in the evaluation of Accreditation Case Type I (indirect veneers). This case type can be considered a test of the dentist's communication skills with his or her laboratory, with examiners' assessments weighing heavily on smile design and dental anatomy. Dr. Horn also did an excellent job of paying careful attention to the functional aspects of this case, as well as to the esthetics.

In situations where tooth lengthening is required, it is often appropriate to increase the length of the teeth cervically, incisally, or to use

a combination of both. This case is a good example of such a scenario. Dr. Horn's proper treatment plan of adding length apically resulted in improved width-to-height ratio of the teeth. Concurrently, the plan allowed for an incisal edge position that was congruent with the patient's facial proportion, lips, and occlusion. This treatment option also enhanced the smile by reducing the excessive gingival display.

Although minor areas of concern such as blunted papillae and shade discrepancy between the veneers on the incisors and the remaining restorations were noted, all five

examiners passed this case with high scores.

Congratulations to Dr. Horn, her periodontist, and her ceramist on their joint achievement in designing and creating an attractive smile.

*For those members who are unfamiliar with the Accreditation Examination Criteria, please see page 63 of this issue of the Journal, contact the AACD Credentialing Department for details, or find them online at www.aacd.com.



ACCREDITATION EXAMINATION CRITERIA

The items listed are designed to serve as a means of categorizing the examination findings and providing educational feedback for the Accreditation candidates. Although this listing is designed to be comprehensive, the criteria cannot encompass all potential clinical circumstances and should not be viewed as limiting examiner analysis and/or commentary.

10. WRITTEN REPORT / ORAL REPORT

11. Have the directions for providing the written report been followed including appropriate references?
12. Has Accreditation protocol been followed?
13. Are the photographic prints included and of good quality? Do they match the clinical digital images?
14. Does the written report demonstrate an understanding of the clinical disciplines necessary for successful completion of this case?

20. CASE SELECTION / DIAGNOSIS / TREATMENT PLANNING

21. Is case selection appropriate to achieve an optimal result in all views?
22. Is the choice of technique and material appropriate for the case?
23. Has function been considered in the choice of treatment (eg. occlusal forces)?
24. Have all necessary clinical disciplines been incorporated to achieve an optimal result (orthodontics, periodontal plastic surgery, etc.)?

30. PHOTOGRAPHY AND RADIOGRAPHY

31. Is the photography well done with proper exposure and composition?
32. Are all the required views shown according to the Accreditation Photography Guide?
33. Are x-rays appropriate to show marginal adaptation of all teeth required to be treated per the Accreditation protocol?
34. Is the photography free of excess moisture and debris?
35. Do the radiographs show problematic clinical issues (i.e. open, overhangs, pathology or other defects)?
36. Has digital photography protocol been followed?

40. ELEMENTS OF DENTAL ANATOMY

41. Is the emergence profile natural?
42. Is the labial anatomy (primary, secondary, and tertiary) appropriate? Are there three planes for the labial contour of the central incisor?
43. Have line angles been properly developed?
44. Is the surface finish, polish, and luster appropriate?
45. In the occlusal view, is the incisal edge position appropriate and is there a definite incisal edge?
46. Is the height-to-width ratio of the restored tooth (teeth) appropriate?

ACCREDITATION EXAMINATION CRITERIA CONTINUED

50. ELEMENTS OF COLOR/SHADE/APPEARANCE

51. Has underlying tooth color been properly managed to allow for an optimal cosmetic result?
52. Does the restoration have “show through” of tooth structure or the fracture line under the material?
53. Is the color (hue, value, chroma) selection appropriate/natural, not monochromatic?
54. Are effects of internal and surface color characterizations appropriate?
55. Is the degree of opacity realistic?
56. Is incisal translucency and halo effect appropriate?

60. PROSTHODONTIC ELEMENTS

61. Is margin placement and design appropriate? Are the margins visible?
62. Is there evidence of cement or resin at the margins?
63. Was an appropriate pontic design selected and was it developed properly to ensure optimal tissue health and contour?
64. Is the interproximal contact or connector proper in length and position?
65. Is the choice of luting material appropriate?
66. Is there evidence of iatrogenic damage to adjacent, opposing or treated teeth?
67. Is the tooth preparation inappropriate or excessive?

70. PERIODONTAL ELEMENTS

71. Is the periodontal health optimal?
72. Is gingival architecture appropriate (in all views) and in harmony with smile design?
73. Should gingival recontouring, shaping, and/or ridge augmentation have been done?

80. SMILE DESIGN ELEMENTS

81. Are incisal edges in harmony with the smile line?
82. Is the midline appropriate?
83. Is the axial inclination appropriate?
84. Are the incisal embrasures proper? Is there a natural progressive increase in the incisal embrasure size from the central to cuspid?
85. Are the principles of proportion and central dominance appropriately used?
86. Is the cervical/incisal tooth length symmetrical from right to left?
87. Are contra-lateral teeth in harmony in terms of size, shape and position?
88. Is the buccal corridor properly developed?
89. Are the cervical embrasures proper? No dark triangles?

ACCREDITATION—A GLIMPSE OF HISTORY AND PROGRESS: INTERVIEW WITH DR. JIMMY EUBANK

CONDUCTED BY DR. JAMES H. HASTINGS



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JH: *Dr. Eubank, you've been an AACD member for many years. When you were asked to serve as Accreditation Chair in 1995, what challenges did you face?*

JE: For one thing, at that time Accreditation could still be attained by acclamation. In other words, a prominent lecturer or author could become Accredited simply by virtue of stature in the profession. That's probably how many associations' recognition programs get started, and there's nothing wrong with it, but there was justifiable criticism of the importance of the credential. I wanted to change the philosophy so that the credential was actually earned. I believed that if the credential were going to have value, it would have to be a "public-trust" credential, so that it would carry weight and validity. The process would have to be objective and even-handed, and no one could achieve Accreditation without going through the process. That way the credential would stand for something.

JH: *What other changes did you oversee?*

JE: We instituted a mentoring process, whereby Accredited members would volunteer to help individuals navigate the Accreditation process. At that time, there were loose guidelines and we wanted to give the candidates someone to talk to. When there's a standard to aim for, the Accreditation candidates can't help but get better at what they do, just by going through the process, whether they are successful or not. I remember seeing one dentist present his five cases four times. He passed on the fourth try. I saw every presentation and it was absolutely amazing and very gratifying to see how much his work had improved with practice. And let us not forget that it's the patients of these dentists who are the real beneficiaries. (Editor's note: Until 2002, the five case types had to physically be brought to the Annual AACD Scientific Session and presented by

the candidate to a team of examiners.)

JH: *During your tenure as Accreditation Chair, you created the photographic standards used today. Tell us about that.*

JE: It was my impression that the images we saw didn't provide a standard method of evaluation. I took a series of photographs to see how we could improve it. I even created a videotape of my Accreditation cases, as if they were being presented to the examiners. This was to provide an example of what a successful presentation might be like; everything was done with the thought in mind that we're trying to get better at what we do. This way more can achieve Accreditation. The final version of the photographs was not for diagnosis,

but for evaluation of cosmetic dentistry. It's pretty hard to hide flaws behind the 12 views.

JH: *How do you view the Accreditation process today?*

JE: It's an outstanding process. Esthetics in general is subjective in nature. We tried to make it as objective as possible. I remember sitting for three hours with Dr. Jeff Morley, discussing proper placement of the facial midline. We finally settled on the nasion and Cupid's bow. We followed that process to establish a step-by-step method of smile design. It was an education for both of us.

JH: *How has the AACD helped shape your philosophy and the profession?*

JE: In the Academy, I found a group of people willing to share unselfishly. It is a gallant thing to sacrifice time and share knowledge to help someone else improve their skills. It's a noble calling, and it's inspiring.

JH: *Dr. Eubank, thank you for your time and your tireless devotion to the profession. We who follow stand on your shoulders.*

AACD Acknowledgment

The American Academy of Cosmetic Dentistry recognizes Dr. Jimmy Eubank as an AACD Accredited Fellow Member (FAACD).



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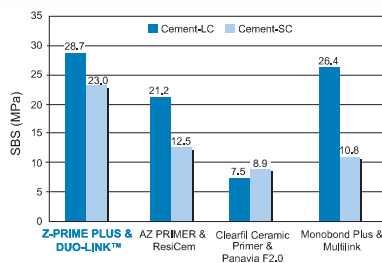
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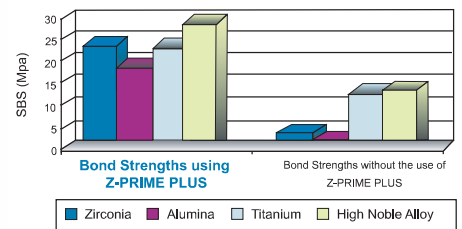


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COMBINING “PREP-LESS” AND CONSERVATIVELY PREPARED VENEERS TO CORRECT ENAMEL DEFECTS AND ASYMMETRY



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INTRODUCTION

Cosmetic dentists today are realizing restorative success with less technique sensitivity, less reduction of tooth structure, and greater esthetics and durability. The ultimate goal of minimally invasive techniques is to reduce the amount of repeated restoration and tooth preparation required by the patient over the long term.¹⁻³ When such restorative therapies have been undertaken and have endured for many years, it then becomes the patient's choice whether to pursue other options that, although not as conservative, are still less aggressive than other modalities.

The patient was looking for a more long-term solution, as well as one that would give her teeth a more even and full appearance.

For example, the literature notes that the preparation philosophies for laminate veneers, in particular, have come full circle, and the emphasis today is on minimal or no tooth reduction. This philosophy is most likely due to the teachings of respected cosmetic dentists who recommend the use of minimal or no tooth preparation whenever possible, depending on the patient's clinical condition and the desired result.^{4,5}

Additionally, laboratory technicians today are able to process pressed ceramic veneers to dimensions requiring little or no tooth reduction,⁵ which also contributes to the conservative potential of this modality. Talented ceramists can press veneers as thin as .4 mm to enable cosmetic dentists to realize such benefits as conservative preparations, reduced postoperative sensitivity, healthy gingival response, and better bond strengths, among others.⁵



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Figure 1: Preoperative portrait view.



Figure 2: Preoperative close-up view of the smile.

Even when the underlying tooth structure for proposed thin veneers is stained, this restorative alternative still may be employed if the patient undergoes vital tooth whitening to successfully remove the discoloration. Although the causes of tooth discoloration and stains—as well as their location and severity in one or multiple teeth—are varied,^{6,7} a number of in-office and take-home whitening products can be used for treating intrinsic and extrinsic stains.⁸⁻¹¹ However, the literature states that there should be at least one week between tooth whitening and restorative procedures to allow time for color/shade rebound before shade matching, as well as to ensure predictability of any adhesive bonding agents that might be used.^{12,13}

This article addresses the case of a bride-to-be who, because her future husband was a dental laboratory technician (and co-author of this article), had seen many beautiful cases for other people. She had

been thinking for some time about enhancing her smile, and believed there was no better time or reason than her upcoming Napa Valley wine country wedding—which was two months away—to get started. She wanted the least amount of tooth structure removed as possible, as well as restorations that appeared natural.

CASE PRESENTATION

A 28-year-old female patient presented desiring a fuller, brighter smile. She disliked the appearance of the old composite bonding previously placed on teeth #8 and #9 to correct enamel defects that left large pitted and discolored concavities (Figs 1 & 2). The bonding would stain and had been replaced many times. Additionally, she noted that she was unhappy with the shape of her canines, as well as the slight rotations present.

The patient was looking for a more long-term solution, as well as one that would give her teeth a more even and full appearance. Because the staining was becoming visible again, her fiancé suggested she consider porcelain veneers as a more permanent solution. However, she was concerned about the loss of tooth structure and that her new teeth would not appear very natural.

A full comprehensive examination was performed; this included an occlusal analysis, study models, facebow, stick bite, periodontal examination, radiographs, and clinical photographs. Her periodontal health was good, and she exhibited no occlusal issues.

The study models were mounted on an articulator and used to perform a diagnostic wax-up based on the patient's desired esthetic and functional results.^{14,15} This also would be used later to create the temporary restorations.

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we will strongly encourage that cosmetic dentistry integrates interdisciplinary medical and dental treatment to enhance outcomes and minimize the loss of healthy human tissue . . .

we will champion and provide minimally invasive treatment protocols, when and where appropriate, that are consistent with the long-term health and needs of the patient . . .

we will encourage the utilization of innovation in technology and materials to deliver dentistry that is predictable and long lasting.



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Figure 3: Preoperative right lateral view of the smile.



Figure 4: Preoperative left lateral view of the smile.



Figure 5: Preoperative retracted facial view of the maxillary and mandibular arches.



Figure 6: Preoperative close-up retracted view of the maxillary anterior dentition.

ESTHETIC EVALUATION

The elements necessary for an esthetic and functional smile that were evaluated included symmetry across the midline, anterior and central dominance, and regression proportion.^{5,16} Overall, the patient demonstrated good gingival height and proportions, but the midline was left of center and canted. Although the initial position of the midline could not be corrected given the patient's desire for conservative restorations, the cant could be corrected. It was evident that #7 and #10 were rotated slightly and, compared to her centrals, seemed

a bit large. Tooth #11 exhibited a large bulge from the middle body down and was facially positioned compared to the rest of her smile.

Teeth #4 and #5, and #12 and #13 were recessed, creating a negative space when the patient smiled (Figs 3-6). Her central incisors were flared slightly, with the incisal edges slightly anterior to the desired "ideal" position (Figs 5 & 6).

TREATMENT PLAN

Based upon the examination findings, several treatment options were discussed with the patient. These included orthodontics and

restoring #8 and #9 with either new composite resin bonding or two veneers; minimal preparation veneers on the premolars to fill out the buccal corridors; or 10 veneers. The option of restoring the patient's teeth with 10 veneers would provide more central dominance while facilitating correction of the mesial-distal tooth size discrepancy between the two central incisors. However, in order to bring #11 into contour, more preparation would be required.

The patient declined any orthodontic treatment and instead agreed to restore ##4-13 with



Figure 7: Close-up left lateral view of provisionals.



Figure 8: Close-up right lateral view of provisionals.

pressed ceramic veneers (IPS Empress Esthetic, Ivoclar Vivadent; Amherst, NY), with the premolars being placed without any preparation except slight alteration using a fine sandpaper disc over the height of contour on #5 and #12 prior to impression taking. The pressable material selected for this case requires less tooth preparation than earlier pressable veneer materials.¹⁷

MATERIAL SELECTION

When selecting materials and determining shades for the final restorations, it is beneficial to minimize or eliminate superficial stains. This is best accomplished in consultation with the ceramist in order to select the most appropriate ingot for the case. Taking note of previous cases helps illustrate the differences in various ingots and the results they produce in terms of shade and vitality.

Several other factors influence the color outcome, including thickness of the restorations, underlying dentin shade, shade of cement used, and amount of stain applied to the restoration during glazing. Proper ingot selection and uniform reduction can easily eliminate two of

these factors. Controlling the final shade is more predictable from one tooth to the next if the veneer thicknesses are as close as possible.

Overall, the patient demonstrated good gingival height and proportions, but the midline was left of center and canted.

In this case, despite the fact that the patient's teeth exhibited a fairly light color, she desired that her final restorations be a bit brighter. Therefore, she was scheduled for in-office bleaching (Zoom, Discus Dental; Culver City, CA), which was to be completed one week prior to her restorative treatment. The Vita 3D Master Shade Guide (Vident; Brea, CA) then was used to determine the most accurate shade. However, the Ivoclar Vivadent bleach guide was used to select the appropriate ingot; the patient chose shade BL2 and the Empress E01 ingot, due to its ability to produce natural-looking esthetics.

PREPARATION AND TEMPORIZATION

Sometimes the most important phase of the treatment occurs before a drop of wax has been placed or the

bur first hits enamel. In conservative cases such as this, nothing could be truer. In particular, several aspects of this case were examined prior to tooth development of the diagnostic wax-up and tooth preparation.

First, function was evaluated to determine if it could be improved. Cuspid guidance was lacking on #11 due to its facial inclination. Additionally, the guidance on #6 and #8 was verified in order to prevent #7 from fracturing after restoration, to a more ideal height. It was determined that #7 was short due to its mesial rotation, and that when placed in the proper position, it would function as intended.

However, the problem areas in the case that would require space for the porcelain and to bring the veneers in line with the adjacent teeth were both the distal of #7 and the facial of #11. These areas would be prepared and reflected in the wax-up, which was used for creating reduction and temporary matrices.

During the provisionalization appointment, the patient was anesthetized using prilocaine plain and lidocaine with epinephrine 1:100,000. A reduction stent (Sil-Tech, Ivoclar Vivadent) was used



Figure 9: Right lateral view of the wax-up created for the maxillary veneer restorations after injection and refinements.



Figure 10: Left lateral view of the wax-up created for the maxillary veneer restorations after injection and refinements.

to facilitate visualization of the amount of reduction necessary.¹⁸ Because #11 was facially positioned, it was necessary to reduce slightly more from that tooth, as described. The preparations were finished using diamond burs and refined with discs (3M ESPE; St. Paul, MN). Photographs were then taken of the preparations with the shade tabs (Ivoclar Vivadent) in order to convey the base shade to the laboratory.

A lip and cheek retractor (Optiguard, Ivoclar Vivadent) was placed during impression taking. A polyvinyl impression was taken using wash and heavy-body material (Aquasil, Dentsply Caulk; Milford, DE), and additional bite records were taken.

Prior to taking final impressions, two sets of temporaries were made in order to verify that there was sufficient reduction and that no "show-through" was present in the provisional restorations. To fabricate the temporaries, another stent (Sil-Tech) was used. To retract and dry the tissue reduction, Expasyl (Kerr Corp.; Orange, CA) was applied and rinsed thoroughly after four minutes, after which the impression was taken using a light- and heavy-body impression material (Aquasil).

To place the temporaries, the teeth were isolated, and a desensitizing agent (Systemp. desensitizer, Ivoclar Vivadent) was applied and dried. The teeth were then spot-etched using a 35% phosphoric acid (Ivoclar Vivadent), rinsed, and dried. A small spot of a fourth-generation adhesive (Scotchbond, 3M ESPE) was then placed on the teeth and cured for 10 seconds using a light-emitting diode (LED) (Kerr LE Demetron; Orange, CA).

Shade B1 of a provisional material (Luxatemp, Zenith DMG; Englewood, NJ) was placed in the stent that had been made from the diagnostic wax-up, and allowed to harden on the patient's teeth for one minute to "shrink-fit" the acrylic to the preparations. Because a trial set of temporaries was made beforehand, a predictable fit was anticipated. Upon removal of the stent, the temporaries were cured for 20 seconds per tooth using the LED curing light, after which they were adjusted using discs and fine diamonds.

The patient was scheduled two days later to evaluate the function and esthetics of the temporaries. At this appointment, another impres-

sion and additional photographs were taken after all adjustments had been made, in order to convey minor changes to the laboratory (Figs 7 & 8).

LABORATORY FABRICATION

At the laboratory, the veneers were waxed by injecting liquid wax into the matrix of the temporaries seated on the preparation model (Figs 9 & 10). The units were then measured against the temporaries, and the incisal edge positions were verified using the model of the mounted temporaries. No variations could be found in either instance. Minimal refining was done in wax, after which the margins were sealed and the case was pressed from the IPS Empress E01 ingot.

After divesting and finishing, the six anterior restorations were cut back in the incisal one-third to allow room for layering and effects porcelains (Fig 11). A wash bake was fired, with stain placed at the mesial and distal corners, the apex of the mamelons, and at the lowest point in between.

The incisal was built using blue, white, and the high translucent opal effects powders. Both the internal



Figure 11: View of the cutback performed on the veneer restorations. Internal effects were added using blue, orange, and high-value wash paste prior to buildup.



Figure 12: View of the IPS Empress thin veneer restorations on the model after final glazing and polishing.

stain and incisal effects were subdued, taking into consideration the bright shade desired.

At this stage, the case was near completion, with only the incisal portion requiring contouring into the correct position. The restorations were given their final surface texture, the contacts verified, and the veneers glazed to a high polish (Fig 12). They were then etched and ready for delivery.

CEMENTATION APPOINTMENT

The veneers were inspected on both the individual dies and the solid model. The provisional restorations were carefully removed, and the preparations were lightly disced on the facial surfaces to remove the bond that was placed. The teeth were then cleaned and dried.

The veneers were tried in one at a time for fit and then tried in together. Two different try-in pastes were used, and the decision was made to seat ##4-7 and ##10-13 with a clear cement (Ensure Clear, Cosmedent; Chicago, IL), and #8 and #9 with a shaded cement (BO.5, 3M ESPE). The veneers then were cleaned with alcohol to remove the try-in pastes, etched (Ultra-Etch, Ultradent Prod-

ucts, Inc.; South Jordan, UT) for 30 seconds, and silanated with primer (Kerr). The respective cements were then applied to the internal aspects of the veneers prior to seating.

The teeth were etched (Ultra-Etch) for 15 seconds, rinsed, and lightly dried with a warm air dryer. An adhesive bonding agent (Optibond Solo, Kerr) was applied to the teeth and light-cured for 20 seconds, after which the veneers were placed two at a time, beginning with the central incisors. A micro-brush was used to remove as much excess resin as possible. They were then cured for 60 seconds per tooth.

A blade was used to remove any excess luting resin from the margins. After removal of excess resin, the occlusion was evaluated (Figs 13 & 14). Ceramic polishers (Dialite, Brasseler USA; Savannah, GA) were then used to smooth out the lingual margins, where necessary (Figs 15-18).

CONCLUSION

With cases such as this where the patient starts out with a smile that has relatively few problems, the expectations are typically very high. A

patient with a “nice” preoperative smile can be more critical of small changes that often go unnoticed in a more dramatic “before and after” scenario. It is because of such high expectations that temporaries must be adjusted and perfected prior to the fabrication of the final restorations. Ceramists can produce more accurate results when shown—rather than merely being told—what the patient wants and expects. When the provisionals are as close as possible to the final desired result, miscommunications are a rarity.

Today, the field of dentistry is a fun and rewarding profession. It is a great honor when patients refer their friends and family for smile enhancements, but even more so when colleagues entrust their families to our care.

Because cosmetic restorative therapies can be achieved with less technique sensitivity, greater conservation of tooth structure, and can be delivered with lifelike esthetics and outstanding function, all of the patient’s concerns in this case were addressed, and she was thrilled with her beautiful smile (Figs 19 & 20). To be able to give our patients a new smile or improve on something they



Figure 13: Postoperative retracted view of the maxillary and mandibular arches following placement of the definitive veneer restorations.



Figure 14: Postoperative close-up retracted view of the final restorations.



Figure 15: Postoperative retracted left lateral view of the final restorations.



Figure 16: Postoperative retracted right lateral view of the final restorations.



Figure 17: Postoperative left lateral view of the natural smile.



Figure 18: Postoperative right lateral view of the natural smile.



Figure 19: Close-up facial view of the natural smile.



Figure 20: Postoperative portrait view.

are unhappy with makes us fortunate to be practicing dentistry today.

AACD Acknowledgment

The American Academy of Cosmetic Dentistry recognizes Dr. Nancy Norling as an AACD Accredited Member (AAACD) and a Give Back A Smile™ (GBAS) volunteer who has restored the smile of two GBAS survivors. The AACD also recognizes Westlund Dental Studio for helping to restore the smiles of several GBAS survivors.

Acknowledgment

Dr. Norling extends a special "thank you" to her co-author, Lance Hancock, Westlund Dental Studio, for the beautiful restorations and for allowing her the privilege of working with him on this case for his fiancée, Heather.

References

1. Malterud MI. Minimally invasive restorative dentistry: a biomimetic approach. *Pract Proced Aesthet Dent.* 2006;18:409-14.
2. Milnar FJ. Artistic placement of a micro matrix direct composite for the restoration of a single maxillary central incisor. *Compend Contin Educ Dent.* 2005 Feb;26(2):100, 102, 104.
3. White JM, Eakle WS. Rationale and treatment approach in minimally invasive dentistry. *J Am Dent Assoc.* 2002 Jun;131 Suppl:13S-19S.
4. Javajeri D. Considerations for planning esthetic treatment with veneers involving no or minimal preparation. *J Am Dent Assoc.* 2007;138:331-7.
5. Dudney TE. Using diagnostic wax-ups and preparation guides to facilitate accurate and esthetic diastema closure and functional bite alteration. *Inside Dent.* 2008;4(7):54-7.
6. Sulieman M. An overview of tooth discoloration: extrinsic, intrinsic and internalized stains. *Dent Update.* 2005;32:434-464, 466-468.
7. Hattab FN, Qudeimat MA, al-Rimawi HS. Dental discoloration: an overview. *J Esthet Dent.* 1999;11:291-310.
8. Sulieman M, Addy M, Macdonald E, Rees JS. The bleaching depth of a 35% hydrogen peroxide based in-office product: a study in vitro. *J Dent.* 2005;33:33-40.
9. Leonard RH Jr, Bentley C, Eagle JC, Garland GE, Knight MC, Philips C. Night-guard vital bleaching: a long-term study on efficacy, shade retention, side effects, and patients' perceptions. *J Esthet Restor Dent.* 2001;13:357-69.
10. Ausschill TM, Hellwig E, Schmidale S, Sculean A, Arweiler NB. Efficacy, side-effects and patients' acceptance of different bleaching techniques (OTC, in-office, at-home). *Oper Dent.* 2005;30:156-63.
11. Deliperi S, Bardwell DN, Papathanasiou A. Clinical evaluation of a combined in-office and take-home bleaching system. *J Am Dent Assoc.* 2004;135:628-34.
12. Kugel G, Ferreira S, Sharma S, Barker ML, Gerlach RW. Clinical trial assessing light enhancement of in-office tooth whitening. *J Esthet Restor Dent.* 2009;21:336-47.
13. Da Silva Machado J, Candido MS, Sundfeld RH, De Alexandre RS, Cardoso JD, Sundfeld ML. The influence of time interval between bleaching and enamel bonding. *J Esthet Restor Dent.* 2007;19(2):111-8.
14. Trinkner TF, Roberts M. A systematic approach to anterior esthetics. *Contemp Esthet Restor Pract.* 2003 Jan;42-9.
15. Magne P, Magne M. Use of additive wax-up and direct intraoral mock-up for enamel preservation with porcelain laminate veneers. *Eur J Esthet Dent.* 2005;1(1):10-9.
16. Snow SR. Esthetic smile analysis of maxillary anterior tooth width: the golden percentage. *J Esthet Dent.* 1999;11(4):177-84.
17. Nash RW. Porcelain veneers: a clinical perspective. *Contemp Esthet Restor Pract.* 2006;10:52-8.
18. Brunton PA, Aminian A, Wilson NH. Tooth preparation techniques for porcelain laminate veneers. *Br Dent J.* 2000;189(5):260-2.



ADVANCED TECHNOLOGIES AND THE COSMETIC DENTAL PRACTICE



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INTRODUCTION

Increasing numbers of people are experiencing the advantages of incorporating new technology into their lives. Advances in technology have affected many aspects of life, including communication, entertainment, education, and transportation, to mention just a few. As newer and more efficient technological developments become available at an almost exponential rate, so does our urge to acquire this technology increase; the field of cosmetic dentistry is no exception.

To ultimately achieve success in correcting an esthetic deficiency, thorough and accurate communication between all those involved in the therapy is imperative.

Cosmetic dentistry is unique among dental fields because it not only requires the practitioner to be proficient in restoring the patient's teeth functionally and biologically, but the dentist must also demonstrate an artistic flair along with an understanding of smile esthetics and design. Fortunately, advances in technology continue to assist cosmetic dentists in providing more efficient, accurate, and natural-looking restorations. There are three primary areas in cosmetic dentistry where advanced technology has had a dramatic positive impact: Communication, materials, and equipment.

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Figure 1: Example of a diagnostic wax-up developed based on what the dentist was told by the patient.



Figure 2: A resin mock-up would be created to help communicate potential cosmetic changes.



Figure 3: Example of a preoperative model used as a starting point for dialog with the patient.

COMMUNICATION

To ultimately achieve success in correcting an esthetic deficiency, thorough and accurate communication between all those involved in the therapy is imperative. This process traditionally was achieved through a dialog with the patient, and the use of photographs and models of other patients who had undergone cosmetic procedures.

Unfortunately, using such limited visualization tools often was inadequate. It was still very difficult for those correcting the cosmetic deficiency (i.e., restorative dentist,

laboratory technician, orthodontist, periodontist) to envision not only what the patient wanted, but also how it would actually appear to him or her once the therapy was completed. Once the dialog process was complete, the dentist would use preoperative models (Fig 1) to create a resin mock-up for the patient to wear (Fig 2). Unfortunately, the design of this mock-up was based upon the dentist's interpretation of what was said (Fig 3), not upon an actual custom design visually depicted in a photograph that had been digitally altered to represent what the patient was expecting

(Figs 4 & 5). Such photographic imaging could be evaluated by the patient, dentist, and laboratory.

Provisional mock-ups prior to initiating therapy, followed by custom provisional restorations after preparation, allow both the dentist and patient to evaluate and alter any smile design characteristics before the final ceramics are manufactured. Having a custom, digitally enhanced smile designed to the patient's specifications prior to treatment helps the esthetic procedure flow more predictably and efficiently.

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Figure 4: Preoperative view of a patient in natural smile prior to any digital imaging enhancements.



Figure 5: Digitally manipulated view of the same patient, showing the manner in which each of her teeth could be esthetically enhanced.



Figure 6: Example of a single lens reflex camera.

The digital imaging and enhancement of smile designs can be facilitated by incorporating such technologies as digital radiographs (e.g., Kodak Digital X-ray, Kodak; Rochester, NY), digital photographs (e.g., Nikon D300, Nikon; Melville, NY) (Fig 6), and computer simulations (e.g., AlterImage, Seattle Software Design; Seattle, WA). These devices and software enable practitioners to accurately capture, record, enhance, and display their digital images in an efficient and predictable manner. These enhanced images ultimately can realistically illustrate to the patient, dentist,

and laboratory technician what the desired smile should look like.

Two methods for creating a computer simulation can be used. The image either is manipulated by the dentist utilizing various software applications to create the desired effect, or the image is sent to an outside professional service (e.g., Virtual-Smiles; Anaheim, CA) that creates the desired simulation. Both methods enable the operator to either digitally manipulate the pixels of individual teeth to create the desired look, or copy and paste a proposed design from a "smile library" over the existing smile. The latter is

quite a simple process, but it should not be used as there is no way to ensure that the root position and tissues of the "library" smile will coincide with what actually exists in the patient's mouth. Manipulating the individual teeth allows the operator to modify the size, shape, angulations, embrasure form, translucency, and color of the teeth, and even the gingival contours.

However, the decision about where to devote time for providing simulations for the patient (i.e., learning to do the simulations or sending them to an outside service) must be made.



Figure 7: Preoperative view of a patient in need of esthetic veneer restorations.



Figure 8: Postoperative view of a patient treated with pressed ceramic veneer restorations.

MATERIALS

Technological advances in materials also have dramatically enhanced today's practice. Patients' determination to have metal-free restorations has fueled tremendous advances in the areas of composite resin and all-ceramic restorations.

COMPOSITES

Posterior composite resins (e.g., Filtek LS, 3M ESPE; St. Paul, MN) have been developed that demonstrate very little shrinkage upon curing. In addition, anterior composites comprised of nanometer-sized particles (e.g., Filtek Supreme Ultra) have optical properties closely mimicking those of a natural tooth, making them restorative materials of choice when placing conventional fillings. When placed correctly according to the ideal principles of adhesion, these types of restorations have proven to be predictable and long lasting, with little or no postoperative sensitivity.

The main causes of postoperative sensitivity are either poor operator technique or composite shrinkage. Operator error typically would include incomplete resin curing (e.g., inadequate light output, insufficient

light-cure exposure to the resin, or too much bulk-curing); inadequate elimination of the solvents in the primers; or improper moisture control prior to dentin primer placement. Any of these errors can lead to postoperative sensitivity as a result of bacterial penetration through marginal gaps, hydrostatic pressure pain from poor micro-mechanical retention between the resin and the tooth, or incomplete resin polymerization. During the polymerization process, the molecular bonds are established, which results in composites volumetrically shrinking anywhere from 1% to 5.7%, and this can cause increased stress on the tooth structure that is directed inward to the composite. This stress, which can subsequently cause postoperative pain, can be avoided either by judicious incremental layering of the composite, or the use of composites with inherently lower shrinkage properties.¹⁻⁴ With the newer resins described and careful placement, this side effect can be virtually eliminated.

CERAMICS

Many developments in ceramics also have become available, particu-

larly the core-strengthened ceramics such as zirconia products (e.g., Lava, 3M ESPE). Machine fabrication enhances their accuracy; their esthetics have improved, and their physical properties meet or surpass the requirements for constructing crown and bridge restorations. Other strengthened ceramics, such as the pressed ceramics (e.g., Authentic, Microstar; Lawrenceville, GA; IPS Empress, Ivoclar Vivadent; Amherst, NY) have proven successful esthetically and functionally when used for inlays, onlays, crowns, and bridges in non-stress-bearing areas (i.e., the premolar to premolar regions of the mouth). Using various cut-back, layering, and staining techniques makes these restorations extremely esthetic (Figs 7 & 8).⁵

ADHESIVES

The advent of self-etching adhesives (e.g., Solo, Kerr; Orange, CA) and self-etching resin cements (e.g., Unicem, 3M ESPE) enables dentists to bond their restorations with little or no postoperative sensitivity and less chair time, which benefits both the patient and doctor. These products have been developed to allow the etching process to be self-

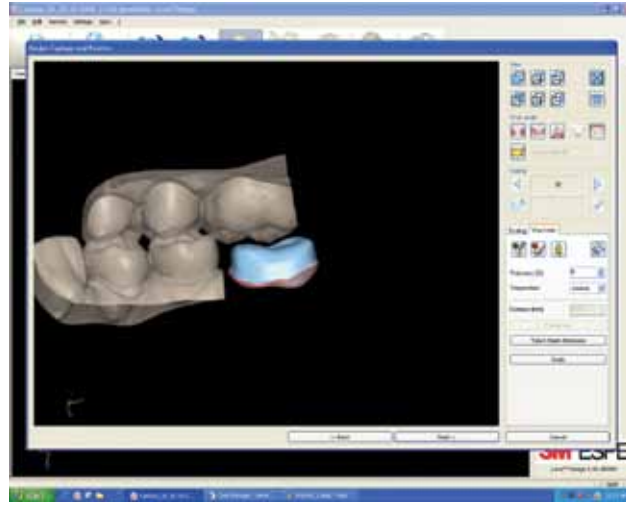


Figure 9: Laboratory screen view of the digital impression of the preparation and opposing arch for tooth #31.

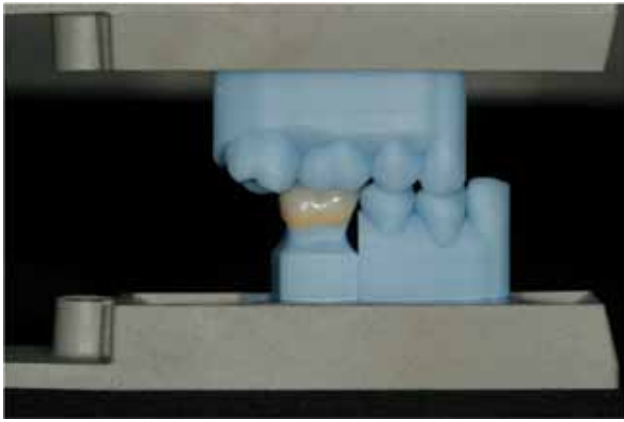


Figure 10: View of the final Lava zirconia crown on a computer-generated resin model.



Figure 11: Buccal view of the final Lava zirconia crown seated on tooth #31.

limiting and occur simultaneously with the application of the dentin primer (monomer). This eliminates the potential for inadequate monomer penetration and, therefore, postoperative sensitivity is virtually eliminated. The self-etching resin cements, in addition to incorporating this component, also contain a small glass ionomer component that makes them dual-cure. As a result, the cement is extremely versatile and can be utilized for any indirect process, with the exception of porcelain laminates, for which dual-cure resin cements are contraindicated.^{6,7}

EQUIPMENT

Digital technology plays a bigger role in the dental community today following the introduction of equipment designed to improve the practitioner's efficiency and help to reduce or even eliminate human error. Since machinery and its actions are precisely repeatable with each use, the chance of errors being introduced is reduced dramatically. As a result, costs are lowered and productivity increases. It is logical to examine available technologies that help reduce areas in the practice where human error, inefficiency, and lower productivity most commonly occur.

DIGITAL IMPRESSIONS

Taking conventional impressions inherently involves several steps prone to human error and, therefore, is a task ideal for using digital technology to help solve this dilemma. Digital three-dimensional video impressions have been shown to not only successfully produce results as good as or better than conventional impressions, but also to make the procedure more efficient and comfortable and, therefore, less costly. These devices (e.g., Lava Chairside Oral Scanner) enable the dentist to digitally capture the impression of the preparation(s), opposing arch,



Figure 12: Occlusal view of the final Lava zirconia restoration on tooth #31.

and the bite, then e-mail the information directly to the laboratory. A computer-generated resin model, from which the restorations are built, is then manufactured based upon the digital impression, and both the digital impression and resin model demonstrate accuracy that equals or rivals conventional methods (Figs 9-12).^{8,9}

CAD/CAM RESTORATIONS

The process of designing and manufacturing an item by integrating a computer with machinery is known as computer-assisted design/computer-assisted manufacturing (CAD/CAM). This technology has been available in dentistry for some time (e.g., CEREC, Sirona, LLC; Charlotte, NC), but due to advances in computer software and demands from the dental industry, more companies are developing these devices. CAD/CAM equipment can be situated in a dental practice, or there are systems specifically for laboratories (e.g., Lava milling centers).

With dental practice CAD/CAM systems (e.g., CEREC; E4D, D4D Technologies, LLC), dentists perform a digital scan of the prepara-

tion, design the final restoration, and import these data into the manufacturing element of the device, where the final restoration is milled to exacting specifications. The milling device can utilize various types of ceramic blocks (e.g., pressed ceramics) that typically are monochromatic or, to a degree, polychromatic. As long as the operator creates an accurate scan and design, the restoration's marginal fit will be precise.¹⁰

It is logical to examine available technologies that help reduce areas in the practice where human error, inefficiency, and lower productivity most commonly occur.

One noticeable advantage of CAD/CAM procedures is that the entire process can be completed in one office visit, avoiding the issues of temporization and a second delivery appointment. However, the patient is committed to being at the office for a significantly long appointment, since the actual milling time for the restoration must be added to the time necessary to pre-

pare the tooth and cement the final restoration.

Esthetically, these restorations are acceptable for inlays and onlays and full-coverage crowns not primarily in the esthetic zone. Unless time is spent either to cut back and layer porcelain over the milled restoration, or place a surface stain directly on the restoration, the esthetics produced, even with the polychromatic blocks, cannot compete with those created by a talented ceramist who stacks porcelain conventionally.

To elaborate, a restoration requiring natural esthetics must mimic a natural tooth, which is polychromatic and has varying degrees of translucency and textures. Milling or pressing a restoration alone confines the restoration to the optics of that block. In order to modify its optics, the dentist or ceramist must place surface stain or actually cut back the pressed or milled block, then layer over the restoration with compatible feldspathic porcelains that have the variety of colors and translucencies required to create the specific illusion desired. Therefore, the advantages and disadvantages of this tech-

nology must be evaluated before investing in it for the dental practice.

DENTAL LASERS

Lasers are another technology that is becoming increasingly popular in today's practice. Research and development have shown that the energy created by lasers can assist dentists in various therapeutic areas of their practice. Lasers have shown the most promise for soft tissue therapies. Although lasers have been developed to remove hard tissue (i.e., enamel and dentin), to date they still cannot compete with either the air turbine or electric drills when time and cost savings are evaluated. Erbium yttrium aluminum garnet (Er:YAG) and Erbium chromium yttrium-Scandium-Gallium Garnet (YSGG) lasers are designed for hard tissue removal, and the neodymium-doped yttrium aluminum garnet YAG (Nd:YAG) and diode lasers are intended for soft tissue therapy.¹¹

The wavelengths of light and the energy produced by lasers also have been used for in-office bleaching techniques to accelerate the process, in caries detection devices (e.g., Diagnodent, Kavo; Lake Zurich, IL), and in soft tissue cancer detection devices (e.g., Velscope, LED Dental, Inc.; White Rock, BC, Canada). Unfortunately, no single laser is available to accommodate all these treatments and, therefore, the cost versus benefits of these instruments must be considered before they are incorporated into the practice.

ELECTRONIC ANESTHESIA

Another technology worth mentioning is electronic anesthesia (e.g., Compudent STA, Milestone; Piscataway, NJ), which is a computer-controlled device for administering local anesthetic. The advantages of

utilizing this device include helping to reduce the fear factor associated with conventional anesthetics based on its high-tech appearance. There is far less discomfort compared to conventional methods, as the device essentially drops one anesthetic at a time, thereby eliminating the pain caused by the pressure of manually injecting the anesthetic. Palatal injections and single-tooth anesthesia also can be given painlessly, eliminating anesthesia of the lips or cheeks. This is beneficial to the dentist when evaluating esthetics immediately after a cosmetic procedure; and to the patient, who experiences less numbing sensation.

CONCLUSION

It is the author's opinion that, in order for dentists to remain competitive and on the cutting edge in their careers, continual education and incorporation of advanced technologies are imperative. As a result of such technologies, dramatic improvements in the quality of the restorations and services we provide our patients have become commonplace, along with an improved quality of our own professional life. Dental laboratories also have benefited from technologies such as various CAD/CAM systems, computer-assisted color matching systems, and newer material systems, all of which inevitably result in better results for patients and dentists.

References

1. Tagami J. (Kuraray). Tips for successful posterior resin composite restorations. Kuraray SP Report. 2005; 1-5. Kuraray Special Edition, Adhesive Technology Solutions, March 2005.
2. Perdigão J, Geraldeli S, Hodges JS. Total-etch versus self-etch adhesive: effect on postoperative sensitivity. JADA. 2003;134:1621-9.

3. Weinmann W, Kappler O, Fundingsland J, Thalacker C. Historical evolution of volumetric polymerization shrinkage of restorative composites. J Dent Res. 2007;Special Issue A:403-6.
4. Giachetti L, Russo DS, Bambi C, Grandini R. A review of polymerization shrinkage stress: current techniques for posterior direct resin restorations. J Contemp Dent Pract. 2006;7(4):1-13.
5. Yilmaz H, Aydin C, Gul B. Flexural strength and fracture toughness of dental core ceramics. J Prosthet Dent. 2007;98(2):120-8.
6. Vrochari AD, Eliades G, Hellwig E, Wrbas KT. Curing efficiency of four self-etching, self-adhesive resin cements. Dent Mat. 2009;25:1104-8.
7. Weiner R. An advanced self-etching resin cement: clinical application. Dent Today. 2008;27(3):82, 84.
8. Birnbaum, NS, Aaronson HB. Dental impressions using 3D digital scanners: virtual becomes reality. Compend. 2008;29(8):494, 496, 498-505.
9. Farah, JW, Reed C, Wojtowicz D. 3M ESPE Lava chairside oral scanner C.O.S. Dent Advisor. 2009 Apr;10:3.
10. Liu PR, Essig ME. A panorama of dental CAD/CAM restorative systems. Compend. 2009;29:482, 484, 486-8.
11. Ranft L. Laser dentistry: enhancing dental treatment with lasers. Consumer guide to dentistry. San Diego (CA): Ceatus Media Group; 2009.

AACD Acknowledgment

The American Academy of Cosmetic Dentistry recognizes Dr. Jack Ringer as an AACD Accredited Member (AAACD).



PERIO-ESTHETICS: THE USE OF GENE-BASED TESTING TO ENHANCE ESTHETIC OUTCOMES AND CREATE HEALTHIER PATIENTS



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ABSTRACT

This article addresses how cosmetic practices are poised to be at the forefront of the early diagnosis and treatment of periodontal disease. Important new DNA-based diagnostic tests reveal both causative agents in a patient's periodontal infection and how their own immune system responds.¹ These tests are easy to perform and provide valuable information for cosmetic treatment planning, as well as valuable information concerning patients' periodontal and general health.

One case study is discussed, tracking a patient who presented for cosmetic dental enhancement and a "cleaning." By simply taking advantage of new diagnostic tools and a patient's motivation to look better, the clinician has a perfect opportunity to include proper periodontal therapy in the treatment plan, thus improving the treatment outcome.

These tests are easy to perform and provide valuable information for cosmetic treatment planning.

INTRODUCTION

Our profession is always evolving, both in terms of procedures as well as materials. Therefore, our esthetic skill level and outcomes are continually improving.

Most clinicians are aware of the oral-systemic connection² and how general health can be directly affected by oral infections. Today, we are aware that these infections put our patients at risk for heart disease,³⁻⁶ cancer,⁷ diabetes,⁸ pregnancy complications,⁹ and other systemic diseases. A basic understanding of molecular diagnostic testing can help us fight inflammation and disease. This



Figure 1: Pre-treatment, retracted view.



Figure 2: Pre-treatment, close-up view.

“biological model,” in conjunction with the present “clinical model” of diagnosis, can give us very valuable information. With a biological understanding of the immune response of each patient, we can “customize” our periodontal therapy to create healthier tissue; and, more importantly, healthier patients.

CASE REPORT

The patient was a 28-year-old female who presented for a new patient examination and wanted to know her esthetic options. Her medical history was not a factor in proceeding with treatment. Her primary concern was the spacing between her teeth. She was aware that the tissue was not healthy and wanted that taken care of as well, but that was not her primary concern. This was an excellent opportunity to discuss proper tissue management and appropriate periodontal therapy with the patient. Bringing health and the oral-systemic link into esthetic treatment planning provides added value in many ways. First and foremost, the patient understands the clinician is looking at their health and well-being, not just the esthetic outcome (Figs 1 & 2).

DIAGNOSIS

The patient was diagnosed with generalized Class II periodontal disease. The pocket depths ranged from 4 to 5 mm (Fig 3).

Typically, we diagnose based upon clinical presentation: Pocket depth, inflammation, and bleeding (all of which are based on anatomical changes and history). While important to know, these clinical signs (clinical phenotypes) are not causative agents and the clinician still will not understand completely why the disease is present. We now have simple tests that can measure actual causative agents and certain immune responses (biological phenotypes).

RESEARCH

The past decade of research in periodontal disease has focused on the fact that it is both a bacterial entity and an immune response entity. So, when the clinician addresses the biological presentation as well as the clinical information (e.g., specific bacteria, bacterial load, and genetic profile), a better understanding of the personal nature of each infection is reached.¹⁰ Clinical signs alone are subjective parameters of

a more complex disease state. Risk assessment using this approach also helps to determine which patients can benefit from systemic antibiotics as an adjunct to therapy, as well as which patients should be treated by co-management with a periodontist.

By combining these two important factors—the clinical phenotype (presentation) with the biological phenotype (immune response)—during the diagnostic phase, we improve our understanding of each patient and how to best serve their health needs as well as their esthetic desires.¹⁰

Saliva is critically important as a potential diagnostic medium,^{1,11} as it contains proteins, enzymes, inflammatory mediators, DNA, and RNA.¹² With today’s technology, we have access to clinical laboratory reports that provide much information regarding disease causation and the immune response. This is extremely valuable to know prior to complex restorative cases, implants, and cosmetic case work.¹³

TESTING

Testing is easy to do and can be done at the initial examination or

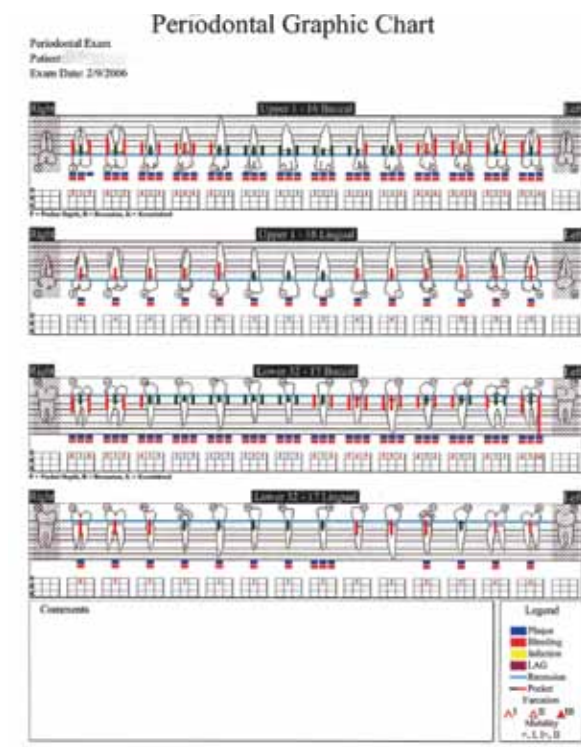


Figure 3: Pre-treatment chart.

by the hygienist as she or he readies the case for treatment.

In this case, two different diagnostic tests were used in our periodontal case work-up. The first was a bacterial DNA test (MyPerioPath, OralDNA Labs; Brentwood, TN) designed to identify both quality and quantity of the periodontal pathogens that were present. The second was a human genetic test (MyPeriod, PST) that is a simple (+) or (-) test looking for the IL-1 gene cluster. If the patient is (+) for this, they are more likely to develop periodontal disease, be more likely to relapse, and often need more frequent re-care appointments. This patient was genotype (+), so we were able to discuss this with her prior to any therapy. This article addresses the bacterial pathogen test system.

Sterile paper points, like the endo point, are placed in the deepest pockets in each sextant. So, one point per sextant is used. The point

is placed in the sulcus for approximately 10 seconds. Each point is then placed in the collection tube, as this is a pool sample. The patient information is entered in the online portal and the sample is sent to the laboratory for analysis. The test results are returned via e-mail in approximately four to seven days (Figs 4-7).

These tests are sent with easy instructions on sampling and mailing. The test used in this case was from OralDNA Labs. This is the only U.S.-based laboratory the author is aware of that currently offers these two tests. Other tests used in the bacterial identification of oral pathogens are the Bana-Zyme test (OraTec; Manassas, VA), and cultivation (available at the University of Southern California and Temple University).

Figure 8 depicts the patient's initial report, showing the type and quantity of disease. We now know

that some bacterial species are tissue-invasive, which ones are at high risk for relapse, and which ones can be associated with the systemic connection to disease.

The report is measurable information about specific bacteria based on their ability to initiate the inflammatory response. Some of these bacteria, such as A.a, P.g., P.i., T.f., and P.m., are more resistant to reduction from scaling and root-planing alone than other micro-organisms associated with disease causation.¹⁴

PERSONALIZED THERAPIES

Using the report, along with the clinical signs and symptoms, we can learn the type of disease, determine the patient's risk for re-infection, and personalize the treatment based both on the clinical presentation as well as on the biological presentation. Personalization of therapy is a major focus of medical diagnosis and therapy due to the emergence of



Figure 4: Example of sampling in the mandibular arch.



Figure 5: Periodontal probe in place measuring pocket depth.



Figure 6: Paper point in place.



Figure 7: Holding the paper point in place for sampling.

clinical laboratory testing of blood, urine, and other body fluids. These reports provide information about specific anti-microbial possibilities that may be used as adjuncts to therapy when certain bacteria are present. These therapies may include antiseptics, locally administered Ab therapy, systemic Ab therapy, as well as others. Clinical laboratory reports help us make these decisions based upon accurate data rather than upon visual inspection. They also give us a great communication tool to explain the value of treatment, regular recall appointments, and homecare instructions that patients can use to

take more responsibility for their own success.

TREATMENT

Treatment for this particular patient focused on helping the patient reach her cosmetic goal (veneers). However, explaining the disease process to her regarding her periodontal condition was imperative. Once she understood that getting the tissue healthy helped her long-term case success, adding appropriate periodontal therapy to the treatment plan was not an issue. The patient underwent a thorough periodontal evaluation that con-

sisted of a full periodontal charting, bacterial DNA test, and genetic susceptibility test. She completed four quadrants of scaling and root-planing using ultrasonic scalers (Cavitron, Dentsply Professional; York, PA) with chlorhexidine (Perio Rx, Discus Dental; Culver City, CA) as the irrigant.

The patient used a home irrigator (Water Pik Professional; Fort Collins, CO) for one month, and the case was then re-evaluated to determine if we had achieved our goal. As seen in the first bacterial DNA test (Fig 8), the patient was noted to have nine of the 11 known peri-

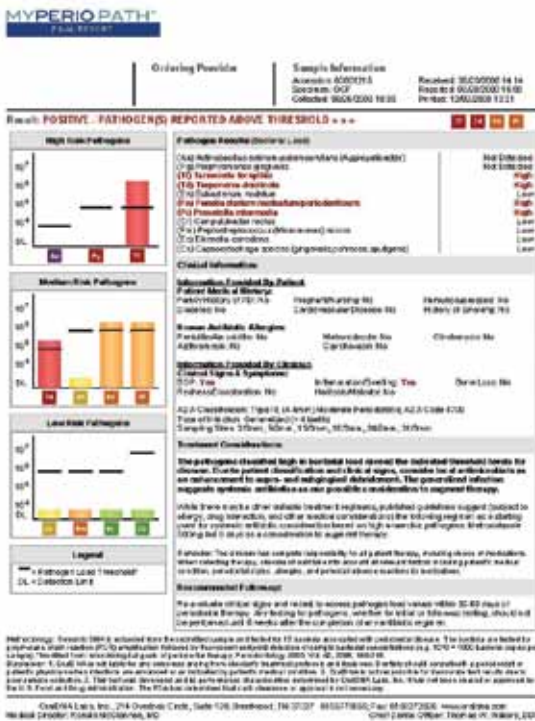


Figure 8: Pre-treatment laboratory report.

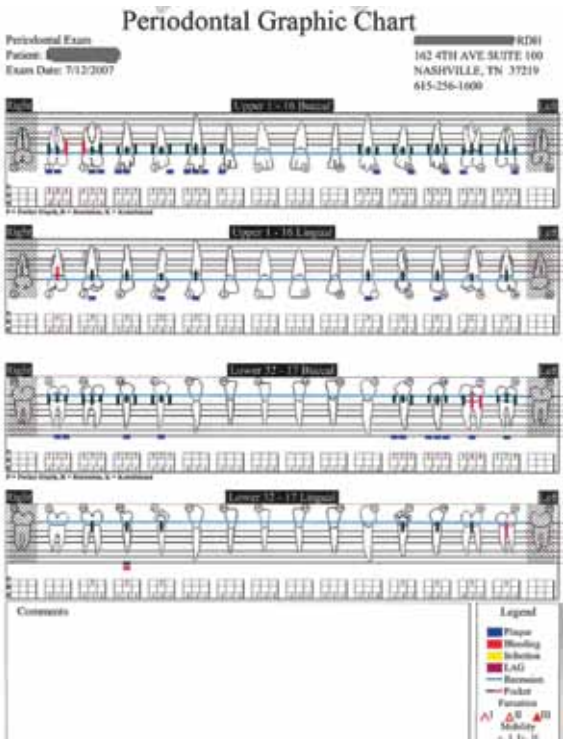


Figure 9: Post-treatment probe chart.

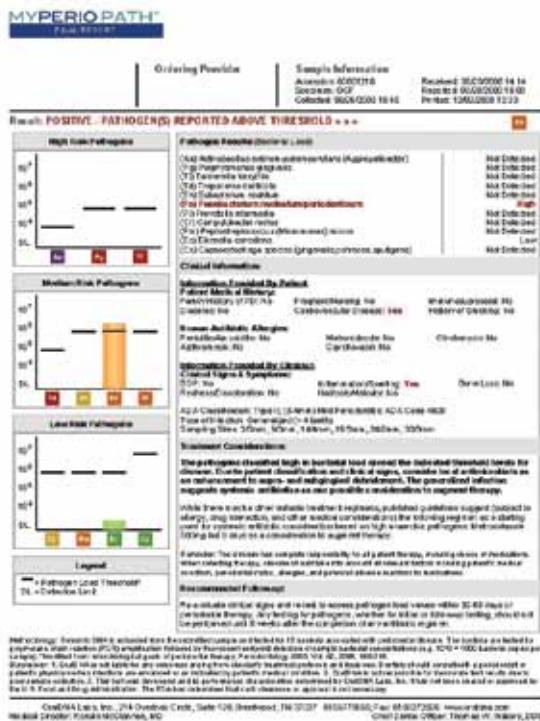


Figure 10: Post-treatment laboratory report.



Figure 11: Post-treatment, retracted view



Figure 12: Post-treatment, close-up view.

odontal pathogens in high concentrations. The evidence of disease can also be seen visually. Note the report that was taken at the one-month re-care appointment. The difference can be seen visually in reduction of the inflammatory response, clinically in the post-therapy probe chart (Fig 9), and verified in the post-therapy laboratory report (Fig 10) that the pathogens initiating the immune response have been significantly reduced or eliminated. Due to the aggressive nature of this infection, the initial report recommended metronidazole 500 mg, bid, for eight days as an adjunct to therapy. This was started at the first scaling and root-planing appointment (Figs 11 & 12).

Had we just “cleaned” the teeth, or scaled without genetic testing, we would not have known that we were dealing with tissue-invasive micro-organisms and a very aggressive infection. The case would have had a high risk for relapse, compromising the esthetics, not to mention the patient’s health.¹⁵ At this point, we can proceed with the veneer case. All aspects of the future case work will be easier with this type of tissue response. Also, the patient un-

derstands her periodontal condition and that it was validated through diagnostic testing. She also understands her responsibility in maintaining her periodontal health.

Gene-based testing gives us another tool for cutting-edge diagnostics—one that helps diagnose disease earlier, avoid potential pitfalls, and communicate with the same type of testing that our medical colleagues use on a daily basis.

DISCUSSION

This case represents a common type of patient that could come into any practice on any day. However, it illustrates that while achieving enhanced esthetics might be the patient’s goal, it is the duty of the clinician to use every opportunity to help patients get healthy as well. All too often, periodontal disease is overlooked and under-treated.¹⁶

Cosmetic dentistry puts clinicians in an excellent position to be leaders in the early detection and treatment of periodontal disease. Patients seek cosmetic services already motivated to reach a goal (one that often has a

significant financial commitment). Patients will appreciate the clinician caring for their health and long-term success of the case. Using this platform, esthetic professionals can guide patients to optimal results by including proper periodontal management in the treatment plan.

CONCLUSION

The AACD affords dentists an opportunity to associate with peers who seek to practice at a high level. Many practices have great periodontal programs and strive to provide excellence in all areas. Understanding that we can improve on even the best of programs with gene-based testing is a significant breakthrough in diagnosis and risk assessment.

While dentistry has seen the cosmetic revolution and the public awareness that we enjoy from that, we are in the midst of another major change: The oral-systemic revolution, which is also penetrating public awareness. Gene-based testing gives us another tool for cutting-edge diagnostics—one that helps diagnose disease earlier, avoid potential pitfalls, and communicate with the same type of testing that



Figure 13: The esthetic periodontium.

our medical colleagues use on a daily basis.

The image in Figure 13 was taken with the same Canon SLR camera (Lake Success, NY) used for taking cosmetic “before” and “after” images. However, by applying the same artistic eye used in evaluating ceramics and design, we begin to see the true beauty in gingival tissue; it is a beautiful, intricate system that provides a wonderful complement to case work when properly managed.

References

1. Giannobile W, Beikler T, Kinney J, Ramseier C, Morelli T, Wong D. Saliva as a diagnostic tool for periodontal disease: current state and future directions. *Periodontol* 2000. 2009;50:52-64.
2. Van Dyke TE. Inflammation and periodontal diseases: a reappraisal. *J Periodontol*. 2008 Aug;79(8 Suppl):1501-2.
3. Friedwald VE, Kornman KS, Beck JD, Genco R, Goldfine A, Libby P, Offenbacher S, Ridker P, Van Dyke TE, Roberts WC. The American Journal of Cardiology and Journal of Periodontology editors' consensus: periodontitis and atherosclerotic cardiovascular disease. *Am J Cardiol J Periodontol*. 2009;80(7):1021-32.
4. WebMD. Periodontal disease and heart health. [Internet]. Available from: <http://www.webmd.com/heart-disease/features/periodontal-disease-heart-health?page=3>.
5. American Academy of Periodontology (AAP). Gum disease links to heart disease and stroke [Internet]. Available from: <http://www.perio.org/consumer/mbc.heart.htm>.
6. Humphry L, Buckley F, Freeman M, Helfland M. Periodontal disease and coronary heart disease incidence: a systemic review and meta-analysis. *J Gen Intern Med*. 2008 Dec;23(12):2079-86.
7. Tezal M, Grossi S, Genco R. Is periodontitis associated with neoplasms? 2005 Mar;76(3):406-10.
8. Mealey BL, Oats TW. Diabetes mellitus and periodontal disease. 2006;77(8):1289-1303.
9. Jared H, Boggess K, Moss K, Bose C, Auten R, Beck J, Offenbacher S. Fetal exposure to oral pathogens and subsequent risk for neonatal intensive care admission. *J Periodontol*. 2009 Jun;80(6):878-83.
10. Offenbacher S, Barros S, Beck J. Rethinking periodontal inflammation. *J Periodontol*. 2008 Aug;79(8 Suppl):1577-84.
11. Wong D, editor. Salivary diagnostics. Ames (IA): Wiley-Blackwell; 2008.
12. Malamud D, R. Sam Niedbala RS, editors. *Ann NY Acad Sci*. Mar;1098:184-91. Boston: Blackwell; 2007.
13. Haffajee AD, Socransky S. Microbiological goals of periodontal therapy *Periodontol* 2000. 2006;42:180-218.
14. Slots J, Ting M. Systemic antibiotics in the treatment of periodontal disease. *Periodontol* 2000. 2002;28:106-176.
15. Haffajee A, Teles R, Socransky S. The effect of periodontal therapy on the composition of the subgingival microbiota. *Periodontol* 2000. 2002;28:106-76.
16. Haffajee A, Teles R, Socransky S. The effect of periodontal therapy on the composition of the subgingival microbiota. *Periodontol* 2000. 2006;42:219-58.

AACD Acknowledgment

The American Academy of Cosmetic Dentistry recognizes Dr. Thomas W. Nabors as an AACD Accredited Member (AAACD), and Give Back A Smile™ (GBAS) volunteer who has restored the smiles of three GBAS survivors.



SHORT-TERM ORTHODONTICS: A VITAL TOOL FOR CONSERVATIVE COSMETIC DENTISTRY



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Editor's note: The author discloses that he is president of Six Month Smiles, Inc., in Rochester, New York.

INTRODUCTION

One of the biggest challenges we face as cosmetic dentists is providing excellent and conservative treatment to patients with malpositioned teeth. When teeth are aligned and the gingival levels are ideal, providing a dramatic cosmetic improvement with either composite or porcelain restorations can be uncomplicated. However, frustrations can arise when patients present for cosmetic treatment with teeth that are misaligned and gingival levels that are incongruous. When considering a restorative solution, we must decide if we are comfortable with the amount of enamel that must be removed in order to provide the patient with a pleasing cosmetic result. The periodontal surgery often required to address asymmetric gingival levels also perpetuates this challenging situation.

Too many adults fit into the category of patients who are "stuck in cosmetic limbo."

Orthodontics often is briefly discussed with these patients, but the majority of adults are not interested in traditional comprehensive orthodontic options.¹ Treatment times associated with conventional orthodontics are unappealing for most adult patients²; these patients typically have no treatment performed and continue to live with displeasing smiles. This is disconcerting for both patients and dentists. Too many adults fit into the category of patients who are "stuck in cosmetic limbo."

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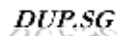


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Figure 1: Composite brackets and tooth-colored wires typically used with STO (note that this is a different patient than in Case 1 and Case 2 discussed in the article).

SHORT-TERM ORTHODONTICS

There is a relatively new type of orthodontic treatment that can be a solution to this common problem—short-term orthodontics (STO). STO utilizes straightwire orthodontic mechanics with brackets and wires, but unique aspects of this treatment make it very attractive for dentists and patients (Fig 1). Achieving an ideal Class I relationship while creating ideal overjet/overbite is among the primary objectives associated with comprehensive orthodontic treatment. Achieving this goal often involves significant time (e.g., two or more years). However, most of the visible movements (i.e., leveling, aligning, intruding, extruding) are easily accomplished within the first six months of orthodontic treatment.³ Altering the Angle's classification and providing ideal overjet/overbite are the aspects of treatment that often take years to fully correct.⁴ STO involves a shift in focus away from the time-consuming areas (changing Angle classification, etc.) toward changes that can be made in a much more reasonable amount of time (i.e., average of six months).

TREATMENT PHILOSOPHY

The treatment philosophy used in STO is similar to the philosophy applied when treating patients with veneers. The goal when using veneers is to provide patients with a beautiful smile by increasing the overall symmetry and harmony of the teeth, lips, and gums, not to change the patient's Angle relationship. The same mindset is utilized during STO treatment. STO enables dentists to align the teeth and gingival margins and greatly improve the overall symmetry of the smile. However, STO also provides a means for correction of some bite issues, such as crossbites and deep bites, as the teeth are repositioned. The focus of STO treatment is cosmetic improvement, but occlusal relationships can also be improved as the arches are leveled and aligned.⁵ This is all accomplished conservatively by gently moving the teeth orthodontically in an average time of six months.

STO involves the use of clear brackets and tooth-colored archwires. This, along with short treatment duration, makes the procedure highly attractive for adults who oth-

erwise might not have any practical options available to them. Most of these adults have fairly specific cosmetic concerns that can be quickly and conservatively corrected with STO. Comprehensive orthodontics is always an option to consider, but STO provides a sensible solution when adult patients refuse traditional treatment.

CASE SELECTION

Case selection is determined by the patient's chief complaints. If a patient's chief complaint lies outside the boundaries of what can be accomplished orthodontically in approximately four to nine months, then the patient would not be an ideal candidate for STO treatment. Patients who are not ideal candidates for STO treatment typically are those who are seeking complete correction of Class II and Class III malocclusions, gummy smiles due to vertical maxillary excess, or significant posterior crossbites. A referral to a specialist is often the most suitable step for these more complex scenarios. Success with STO depends upon realistic and concordant goals for both the patient and the treat-



Figure 2: Pre-treatment left lateral view of the patient's smile clearly showing the malposition of her teeth.



Figure 3: Pre-treatment left lateral retracted view showing crowding, unfavorable gingival levels, and a lower occlusal plane that was not level.



Figure 4: Left lateral smile view after seven months of STO treatment and minor refinement of the incisal edges.



Figure 5: Left lateral retracted view after seven months of treatment, showing even incisal edges and harmonious gingival symmetry.

ing dentist. Dr. Vincent G. Kokich, a prominent orthodontist, has said, "In an adult...we can look at their mouth, teeth, and their history and use that to help make our treatment objectives more realistic than idealistic based on their needs up to that point."⁶

CASE REPORT 1

A 55-year-old female in excellent health was seeking cosmetic dental care because her son was getting married in 10 months, and she wanted to "smile with pride" at his wedding. She presented to the office inquiring about porcelain veneers.

FINDINGS

After the initial examination and consultation, it was determined that porcelain veneers were not a viable option due to her malpositioned teeth. Teeth #8 and #9 overlapped significantly, and #6 was in buccoversion (Figs 2 & 3). The lower incisors were moderately crowded, the gingival levels were unfavorable, and the lower occlusal plane was not level. Additionally, there was a 75% overbite. Comprehensive orthodontics was discussed, but the patient was not willing to undergo any orthodontic treatment that

would last longer than nine months. After further discussing the patient's desires and ample examination, it was determined that she was an ideal candidate for STO treatment. Examination and radiographs revealed healthy temporomandibular joints (TMJs), musculature, and periodontal tissues. A slight Class II canine relationship existed bilaterally.

TREATMENT

Treatment consisted of STO using clear composite brackets and a series of three tooth-colored NiTi archwires (.014," .016," and .018") (DiaDent; Burnaby, BC, Canada).

Conservative interproximal reduction was provided in the upper and lower anterior regions using a medium-grit diamond strip and a .15-mm interproximal disc (Six Month Smiles; Rochester, NY). Conservative reduction was performed at each of the first four visits, rather than performing reduction at the beginning of treatment, which is often done with traditional orthodontic treatment. This was done so that the natural tooth shapes could be maintained and reduction could be strategically controlled.⁷

The patient was seen monthly for adjustment appointments that consisted of removing the wires, performing interproximal reduction as needed, and replacing the archwires. Tooth movement was primarily accomplished by the use of NiTi archwires, which level and align the dental arches as the wires regain their shape via their shape memory.

Treatment was completed in seven months. Upon completion, the brackets were removed and adequate retention was provided. Light enameloplasty was performed to remove mamelons and

to refine worn and uneven edges (Figs 4 & 5). An occlusal adjustment was performed three months after cessation of treatment, to ensure balanced and appropriate occlusal contacts once settling had occurred and the periodontal ligaments had regained firmness.

STO involves a shift in focus away from the time-consuming areas (changing Angle classification, etc.) toward changes that can be made in a much more reasonable amount of time.

CASE REPORT 2

Crowded teeth, unlevel occlusal planes, and inadequate gingival levels create challenges for the practitioner. Existing spaces within the dental arches often create a tricky predicament for the cosmetic dentist. Restoring spaced teeth with veneers can create the appearance of teeth that are inappropriately proportioned. STO can be an extremely powerful tool for the cosmetic dentist when faced with these situations.

FINDINGS

A 19-year-old male in good health presented for cosmetic dentistry with a chief complaint about the diastema between teeth #8 and #9 (Figs 6-10). The patient had minor spacing in the lower arch, but these spaces were not included in his chief complaint. The proportions of the teeth were evaluated using a Golden Proportion template (Fig 11). It was determined that closing the diastema between teeth #8 and #9 with restorations would yield central incisors that were slightly too wide, particularly when compared to the existing width of the upper lateral incisors. Furthermore, the patient was averse to restorative treatment because of the possibility that the restorations would need to be replaced in the future.

A thorough examination included evaluation of the TMJs, musculature, and occlusion; this revealed healthy joints and muscles. Using a leaf gauge, the patient was guided into centric relation to determine the occlusal relationship when the condyles were fully seated.⁸ A very slight slide was noted when the



Figure 6: Pre-treatment view of a male patient's natural smile clearly displaying the diastema between teeth #8 and #9.



Figure 7: Pre-treatment portrait view of the patient showing the prominence of the anterior maxillary diastema.



Figure 8: Pre-treatment retracted facial view of the maxillary and mandibular arches.



Figure 9: Pre-treatment retracted right lateral view.



Figure 10: Pre-treatment retracted left lateral view.



Figure 11: The Golden Proportion template superimposed over the patient's teeth demonstrates that the maxillary central incisors would be slightly too wide if the diastema were closed with a restorative option.

teeth moved from centric occlusion (CO) to maximum intercuspation. STO was planned for the upper arch only. No orthodontic or restorative treatment was planned for the lower arch. The patient was told that the treatment would most likely be completed in six to nine months. The goals of treatment were to improve the relationship of the anterior teeth, improve the gingival arrangement in the upper arch, and close all existing maxillary spaces. For stability purposes and to reduce muscular activity, a secondary occlusal goal was to create a situa-

tion where CO was concordant with maximum intercuspation, although studies point to a lack of a clear relationship between occlusal interferences and TMJ disorders (TMD).⁹ The literature also seems to show little connection between occlusal relationships (e.g., Angle's class) and TMD.¹⁰

TREATMENT

Treatment was initiated by indirectly bonding the orthodontic brackets to the upper arch, and a .018" archwire was secured. Indirect bonding enables predictable

and efficient placement of brackets. Models were then sent to the laboratory, and a laboratory technician positioned the orthodontic brackets in the precise locations on models of the patient's teeth. The technician then fabricated a two-layer tray that was returned to the author along with the other necessary orthodontic materials. Indirect trays make the bracket placement process almost as easy as seating a bleaching tray (Fig 12).

This patient required just five months of STO treatment. The upper spaces were closed, and the oc-



Figure 12: View of the outer layer of the orthodontic indirect bonding tray being removed.



Figure 13: View of the patient's natural smile following five months of STO treatment.



Figure 14: Post-treatment portrait view of the patient's new smile. Note the prominent difference made by closing the diastema with STO treatment.



Figure 15: Post-treatment retracted facial view of the patient's maxillary and mandibular arches.



Figure 16: Post-treatment retracted right lateral view.



Figure 17: Post-treatment retracted left lateral view.

clusal relationship improved. The maxillary midline position also was corrected (Figs 13-17). Upon completion of STO treatment, adequate retention was provided, and a limited equilibration was performed. At a three-month retainer check, a more involved post-orthodontic equilibration was performed to ensure that occlusal contacts and guidances were desirable and that no centric occlusion to maximum intercuspation slide existed.

SUMMARY

Crowded and spaced teeth can pose a challenge for cosmetic dentists. Traditionally, if patients with malpositioned teeth refused comprehensive orthodontics, we were torn between relatively aggressive veneer preparations or no treatment at all. STO provides dentists with a tremendously valuable and conservative treatment option. STO can be an effective stand-alone treatment, but it is especially powerful when coupled with conservative veneers. STO treatment allows dentists to level and align the arches while correcting crowding and unfavorable tooth angulations. Veneers or composite bonding can provide the finishing

touches to tooth texture, color, and shape.

The STO process is relatively easy to learn and to implement. As dentists continually focus on conservative treatment, STO has become an increasingly viable option.

CONCLUSION

With the ability to offer patients STO therapy, cosmetic dentists no longer have to search for the ideal cosmetic dentistry candidates in order to create beautiful smiles. Treatment planning no longer must be performed based upon the current location of the teeth. Patients who were not good candidates for veneers due to misaligned teeth and asymmetrical gingival positions now can be transformed into ideal veneer cases in just a few months. This provides cosmetic dentists with new possibilities to offer highly appealing and conservative cosmetic dentistry for our patients regardless of the position of their teeth.

References

1. Petersen B, Dahlström L. Perception of treatment need among orthodontic patients compared with professionals. *Acta Odontol Scand*. 1998;56:299-302.
2. Myrberg N, Thilander B. An evaluation of the duration and the results of orthodontic treatment. *Scand J Dent Res*. 1973;81(2):85-91.
3. Franchi L, Baccetti T, Camporesi M, Lupoli M. Maxillary arch changes during leveling and aligning with fixed appliances and low-friction ligatures. *Am J Dent Orthod Dentofacial Orthop*. 2006 Jul;130(1):88-91.
4. Skidmore KJ, Brook KJ, Thomson WM, Harding WJ. Factors influencing treatment time in orthodontic patients. *Am J Orthod Dentofacial Orthop*. 2006;129(2):230-8.
5. Proffit WR, Fields HW. *Contemporary orthodontics*. 3rd ed. St. Louis: Mosby; 2000. 616 p.
6. DiMatteo A. The straight story on orthodontics in the general practice. *Inside Dent*. 2007 Apr;3(4):46-9.
7. Radlanski RJ, Jäger A, Schweska R, Bertzbach F. Plaque accumulations caused by interdental stripping. *Am J Orthod Dentofacial Orthop*. 1988;94:416-20.
8. Long JH. Locating centric relation with a leaf gauge. *J Prosthet Dent*. 1973;29:608-10.
9. Clark GT, Tsukiyama Y, Baba K, Watanabe T. Sixty-eight years of experimental occlusal interference studies: what have we learned? *J Prosthet Dent*. 1999;82:704-13.
10. Gesch D, Bernhardt O, Kirbschus A. Association of malocclusion and functional occlusion with temporomandibular disorders (TMD) in adults: a systematic review of population-based studies. *Quintessence Int*. 2004;35:211-21.



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