CDA PREVIEW EDITION

DENTAL TRIBUNE

The World's Dental Newspaper · U.S. Edition

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Exploring the most demanding key area when it comes to matching shade. ▶ *page 8A*

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Relationship marketing
It begins from the moment a patient sits down in your chair. ▶ *page 1C*

CDA Foundation names Cathy Mudge executive director

The California Dental Association Foundation recently named Cathy Mudge as its new executive director. The foundation's board of directors unanimously voted to hire Mudge during its recent board meeting. Mudge, who is also chief administrative officer of the California Dental Association (CDA), will be taking on the additional duties of the foundation's executive director while continuing her current role.

"I'm thrilled with this new opportunity to work with the foundation and its mission to improve the oral health of all Californians through innovative programs that link dentistry to community needs," said Mudge, who has worked at CDA since 1997.

Founded in 2000, the California Dental Association Foundation has made a number of significant contributions to oral health care in California, including its work in community water fluoridation, CAMBRA (Caries Management by Risk Assessment), the develowpment of Perinatal Oral Health Guidelines and the Student Loan Repayment Program, which awards grants to new dentists in exchange for a commitment to provide services to those who experience barriers to care.

"Cathy is well respected for her leadership and management abilities. She has an excellent grasp of public policy, community relations and the serious challenges of eliminating oral health-care barriers for the underserved," said Cindy Lyon, DDS, chair of the CDA Foundation. "She will be a tremendous asset in implementing the foundation's strategic initiatives as we work to address disparities in oral health care, particularly among California's children."

Cathy Mudge is the new executive director of the California Dental Association Foundation. (Photo/ California Dental Association)

Thanks to generous donations to the CDA Foundation, nearly 85,000 underserved Californians who otherwise

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'The Art and Science of Dentistry'

San Francisco is one of those cities that can still offer up suprises no matter how many times you've attended the California Dental Association's Annual Meeting. We've got a list of 10 can't-miss ideas for your consideration. (Photo/Photoquest, www.dreamstime.com)

→ *See page 13A*

Pitt School of Dental Medicine isolates steps in enamel formation

Researchers at the University of Pittsburgh School of Dental Medicine are piecing together the process of tooth enamel biomineralization, which could lead to novel nanoscale approaches to developing biomaterials.The findings were reported online in the first week of August in the Proceedings of the National Academy of Sciences.

Dental enamel is the most mineralized tissue in the body and combines high hardness with resilience, said Elia Beniash, PhD, associate professor of oral biology, Pitt School of Dental Medicine. Those properties are the result of its unique structure, which resembles a complex ceramic microfabric.

"Enamel starts out as an organic gel that has tiny mineral crystals suspended in it," Beniash said. "In

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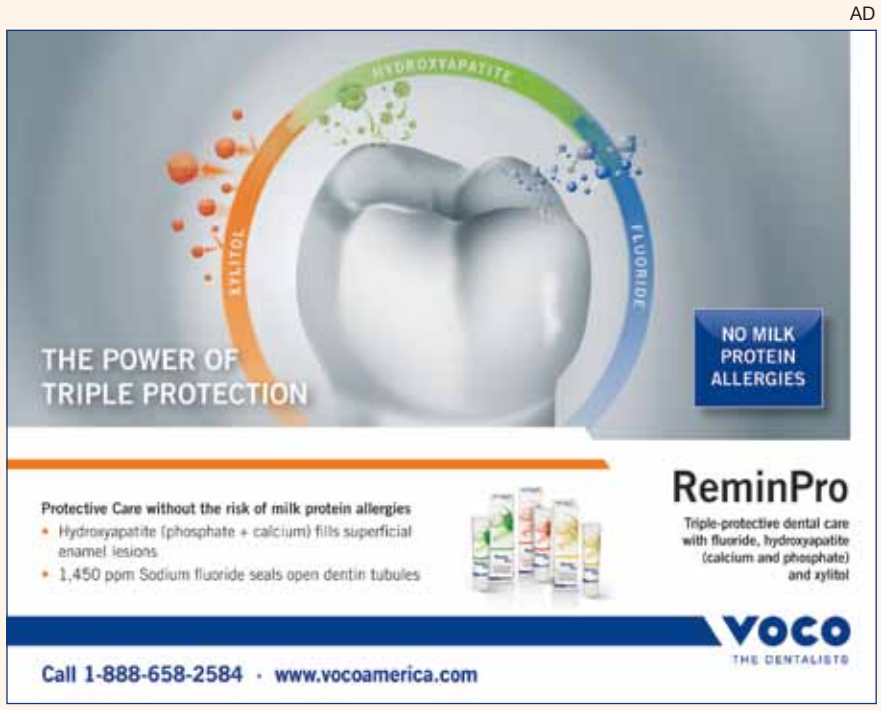

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Dentists, pharmacists raise awareness of xerostomia

Older adults have a higher risk of medication-induced xerostomia

Leading dental and pharmacy organizations are teaming up to promote oral health and raise public awareness of xerostomia, a side effect commonly caused by taking prescription and over-the-counter medications.

More than 500 medications can contribute to oral dryness, including antihistamines (for allergy or asthma), antihypertensive medications (for blood pressure), decongestants, pain medications, diuretics and antidepressants.

Nearly half of all Americans regularly take at least one prescription medication daily, including many that produce xerostomia, and more than 90 percent of adults over age 65 do the same. Because older adults frequently use one or more of these medications, they are considered at significantly higher risk of experiencing xerostomia.

The American Dental Association (ADA), Academy of General Dentistry (AGD), American Academy of Periodontology (AAP) and the American Pharmacists Association (APhA) are collaborating to expand awareness of the impact of medications on xerostomia. At least 25 million Americans have inadequate salivary flow or composition and lack the cleansing and protective functions provided by this important fluid.

"Each day, a healthy adult normally produces around 1.5 liters of saliva, making it easier to talk, swallow, taste, digest food and perform other important functions that often go unnoticed," notes Dr. Fares Elias, president of the Academy of General Dentistry.

Signs and symptoms

At some point, most people will experience the short-term sensation of oral dryness because of nervousness, stress or just being upset. This is normal and does not have any long-term consequences. But chronic cases of xerostomia persist for longer periods of time. Common symptoms include trouble eating, speaking and chewing, burning sensations, or a frequent need to sip water while eating.

"Dry mouth becomes a problem when symptoms occur all or most of the time and can cause serious problems for your oral health," explained Dr. Matthew Messina, ADA consumer advisor. "Drying irritates the soft tissues in the mouth, which can make them inflamed and more susceptible to infection."

According to Dr. Messina, who practices general dentistry in the Cleveland area, without the cleansing and shielding effects of adequate saliva flow, tooth decay and periodontal disease become much more common. "Constant dryness and the lack of protection provided by saliva may contribute to bad breath. Dry mouth can make full dentures become less comfortable to wear because there is no thin film of saliva to help them adhere properly to oral tissues," he adds. "Insufficient saliva can also result in painful denture sores, dry and cracked lips, and increased risks of oral infection."

Common causes

Once considered an inevitable part of aging, xerostomia is now commonly associated with certain medications and autoimmune conditions, such as Sjögren's syndrome. Both of these can reduce salivary production or alter its composition, but experts agree that the primary cause of xerostomia is the use of medications.

Radiation treatment for head and neck cancer is also an impor-

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would have gone without oral health care were treated in 2010, reflecting more than $12 million in services. In the past decade, the foundation's Grant Program has helped provide oral health services to more than 355,000 people, valued at nearly $56 million.

Prior to her current roles as foundation executive director and CDA chief administrative officer, Mudge, who has worked in the association arena since 1990, was CDA's vice president of public policy.

The CDA Foundation was formed as the philanthropic affiliate of the California Dental Association in 2001 with the mission to improve the oral health of Californians by supporting the dental health profession and its efforts to increase access to care for the state's most vulnerable people.

The CDA Foundation works with experts in the dental profession, private business, academic institutions and government to produce programs that increase access to care; promote prevention, education and intervention; advance health policy research; and build a sustainable oral health workforce.

More information is available at *www.cdafoundation.org*. DT

(Source: California Dental Association)

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Publisher & Chairman
Torsten Oemus
t.oemus@dental-tribune.com

Chief Operating Officer
Eric Seid
e.seid@dental-tribune.com

Group Editor & Designer
Robin Goodman
r.goodman@dental-tribune.com

Editor in Chief Dental Tribune
Dr. David L. Hoexter
d.hoexter@dental-tribune.com

Managing Editor/Designer Implant, Endo & Lab Tribunes
Sierra Rendon
s.rendon@dental-tribune.com

Managing Editor/Designer Ortho Tribune & Show Dailies
Kristine Colker
k.colker@dental-tribune.com

Online Editor
Fred Michmershuizen
f.michmershuizen@dental-tribune.com

Product & Account Manager
Mark Eisen
m.eisen@dental-tribune.com

Marketing Manager
Anna Wlodarczyk
a.wlodarczyk@dental-tribune.com

Sales & Marketing Assistant
Lorrie Young
l.young@dental-tribune.com

C.E. Manager
Julia E. Wehkamp
j.wehkamp@dental-tribune.com

C.E. International Sales Manager
Christiane Ferret
c.ferret@dtstudyclub.com

Dental Tribune America, LLC
116 West 23rd Street, Suite 500
New York, NY 10011
Tel.: (212) 244-7181
Fax: (212) 244-7185

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tant cause of severe xerostomia. The treatment can produce significant damage to the salivary glands, resulting in diminished saliva production and extreme xerostomia in many cases.

"Saliva plays an important role in maintaining oral health," said Dr. Donald Clem, president of the American Academy of Periodontology. "With decreased saliva flow, we can see an increase in plaque accumulation and the incidence and severity of periodontal diseases."

How to relieve xerostomia

Individuals with xerostomia should have regular dental checkups for evaluation and treatment. Patients should carry an up-to-date medication list at all times, and dental offices should review this information at every appointment to make sure there have not been any changes.

"In some cases, a different medication can be provided or dosage modified to alleviate dry mouth symptoms," said Thomas Menighan, executive vice president and chief executive officer of the American Pharmacists Association. Patients should talk to their pharmacist if they have any questions regarding their medication.

Increasing fluid intake, chewing sugarless gum, taking frequent sips of water or sucking on ice chips can also help relieve dry mouth symptoms. Avoiding tobacco and intake of caffeine, alcohol and carbonated beverages may also help those with the condition.

Dentists may recommend using saliva substitutes or oral moisturizers to keep the mouth wet and local pharmacists are also a helpful source for information on products to help manage dry mouth.

About the American Dental Association

The not-for-profit ADA is the nation's largest dental association, representing more than 156,000 dentist members. The premier source of oral health information, the ADA has advocated for the public's health and promoted the art and science of dentistry since 1859.

The ADA's state-of-the-art research facilities develop and test dental products and materials that have advanced the practice of dentistry and made the patient experience more positive.

The ADA Seal of Acceptance long has been a valuable and respected guide to consumer dental care products. The monthly Journal of the American Dental Association (JADA) is the ADA's flagship publication and the best-read scientific journal in dentistry.

For more information about the ADA, visit the Association's Web site at *www.ada.org*.

About the Academy of General Dentistry

The Academy of General Dentistry (AGD) is a professional association of more than 37,000 general dentists dedicated to staying up to date in the profession through continuing education to better serve the public.

Founded in 1952, the AGD has grown to become the second-largest dental association in the United States, and it is the only association that exclusively represents the needs and interests of general dentists. More than 772,000 people in the United States are employed directly in the field of dentistry.

A general dentist is the primary care provider for patients of all ages and is responsible for the diagnosis, treatment, management and overall coordination of services related to patients' oral health needs.

For more information about the AGD, please visit *www.agd.org*.

About the American Academy of Periodontology

The American Academy of Periodontology (AAP) is the professional organization for periodontists — specialists in the prevention, diagnosis, and treatment of diseases affecting the gums and supporting structures of the teeth, and in the placement of dental implants.

Periodontists are also dentistry's experts in the treatment of oral inflammation. They receive three additional years of specialized training following dental school, and periodontics is one of the nine dental specialties recognized by the American Dental Association.

The AAP has 8,000 members worldwide. Visit the AAP online at *www.perio.org*.

About the American Pharmacists Association

The American Pharmacists Association (APhA), founded in 1852 as the American Pharmaceutical Association, is a 501 C6 organization, representing more than 62,000 practicing pharmacists, pharmaceutical scientists, student pharmacists, pharmacy technicians and others interested in advancing the profession.

APhA, dedicated to helping all pharmacists improve medication use and advance patient care, is the first-established and largest association of pharmacists in the United States. Visit APhA online at *www.pharmacist.com*. DT

(Source: American Dental Association)

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our project, we recreated the early steps of enamel formation so that we could better understand the role of a key regulatory protein, called amelogenin, in this process."

Beniash and his team found that amelogenin molecules self-assemble in stepwise fashion via small oligomeric building blocks into higher-order structures.

Just like connecting a series of dots, amelogenin assemblies stabilize tiny particles of calcium phosphate, which is the main mineral phase in enamel and bone, and organize them into parallel arrays. Once arranged, the nanoparticles fuse and crystallize to build the highly mineralized enamel structure.

"The relationship isn't clear to us yet, but it seems that amelogenin's ability to self-assemble is critical to its role in guiding the dots, called prenucleation clusters, into this complex, highly organized structure," Beniash said. "This gives us insight into ways that we might use biologic molecules to help us build nanoscale minerals into novel materials, which is important for restorative dentistry and many other technologies."

Co-authors include Ping-An Fang, PhD, and James F. Conway, PhD, both of Pitt; Henry C. Margolis, PhD, of the Forsyth Institute, Cambridge, Mass.; and James P. Simmer, DDS, PhD, of the University of Michigan.

The research was funded by the National Institutes of Health and the Commonwealth of Pennsylvania.

About University of Pittsburgh School of Dental Medicine

Established in 1896 as an independent institution named the Pittsburgh Dental College, the School of Dental Medicine was incorporated into the University of Pittsburgh in 1905. The school offers a four-year predoctoral program leading to a Doctor of Dental Medicine (DMD) degree, an international and advanced standing program for graduates of foreign dental schools, and post-graduate residency programs in 10 disciplines.

The school of Dental Medicine offers the only dental hygiene certificate program in Pennsylvania affiliated with a major university, in addition to a dental hygiene baccalaureate degree program. The School of Dental Medicine's comprehensive clinical offerings include the new Multidisciplinary Implant Center and the Center for Patients with Special Needs, one of the few centers in the United States dedicated to training future dentists to care for patients with disabilities.

Recognized for excellence in research, the School of Dental Medicine ranked 13th in National Institute of Dental and Craniofacial Research funding for fiscal year 2008.

For more information about the School of Dental Medicine, please visit *www.dental.pitt.edu.* DT

(Source: Pittsburgh School of Dental Medicine)

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New AGD president

Howard Gamble, DMD, FAGD, of Sheffield, Ala., was installed as president of the Academy of General Dentistry (AGD) during the July meeting in San Diego.

"Being chosen to lead the AGD's 37,000 members is one of the greatest achievements of my career," Gamble said. "Our members can take solace in knowing that the organization is working tirelessly every day, advocating and protecting the rights of general dentists. We also foster our members' ongoing learning through quality continuing dental education so that they may better serve their patients and the public."

A member of the AGD since 1979, Gamble has served the organization in many capacities, including as speaker of the house and national spokesperson for the AGD. Gamble has also served the AGD on the National Sponsor Approval and Internet Committees; the Marketplace Task Force; and the Legislative and Governmental Affairs, Dental Practice, and Communications Councils.

He is a past president of both the Alabama AGD and the Alabama Dental Association and has served as a delegate or alternate delegate to the American Dental Association (ADA) for 10 years and the AGD for 17 years.

Gamble has also presented lectures on the use of technology in the dental office at numerous dental meetings, including those presented by the ADA and the AGD. He has written articles for AGD Impact, the AGD's monthly newsmagazine, and other dental publications, as well.

Gamble is an active member of the ADA and is a Fellow in the American College of Dentists, the International College of Dentists, and the Academy of Dentistry International. He graduated from the University of Alabama School of Dentistry in 1967 and has been practicing dentistry in Sheffield for more than 42 years. DT

(Source: AGD)

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Want long-term patients? Address the obvious ...

By Sally McKenzie, CEO McKenzie Management

While many dentists tend to be overly concerned about the number of new patients coming into the practice each month, patient retention is where practice profitability is best achieved. The ability to retain patients makes a big difference in the patients' average value.

It's been shown that if patient retention is at 50 percent, the average value is $1,200 per patient. If you retain 75 percent of patients, the average value jumps to $2,500. In other words, patient value more than doubles.

Two things in particular are essential to retaining long-term loyal patients: First, address the common dislikes and frustrations. Second, build positive personal relationships. Chatting with the patient for five minutes or less every six months is not building a relationship. It requires a bit more consideration and effort than that, but will pay huge dividends in the longrun.

Start with your new patients by establishing a system in your office in which every new patient is sent a handwritten personal thank you note from the dentist, no exceptions. Keep it simple and straightforward, but also personal, for example.

Dear [Patient Name],

It was a pleasure meeting you at your new patient appointment on Wednesday. Thank you for choosing our practice. If you have any questions, please feel free to contact us at any time. And best of luck to your daughter in her upcoming soccer season!

Sincerely,
Dr. GoodDoc

Better yet, give new patients a brief call a couple of days before their appointment to introduce yourself. I guarantee the patient will be utterly stunned and thoroughly impressed. The key is personalization. A personal phone call and a handwritten, personalized note carries far more weight and value to the recipient.

While I'm on the topic of thanking patients, don't overlook your referring patients. They have paid you and your team the highest compliment. Sending flowers or other "showy" gift to the workplace is one of the best ways to generate a "buzz" about your practice.

The fact is that anytime someone receives flowers, everyone wants to know what the occasion is and whom they are from. In addition, if everyone is talking about your practice, it's likely to generate even more referrals.

Address the realities of fear and pain

Next, minimize those aspects of the dental visit that patients dislike the most, starting with injections. There are products on the market today that enable you to give injections that are truly painless. This is particularly important when giving a shot in highly sensitive areas, such as the palate or upper incisors.

These are experiences that patients remember for better or worse. Moreover, don't overlook topical anesthetics for dental hygiene visits to minimize discomfort as much as possible.

Consider fearful patients. Many dentists would rather avoid them as much as such patients want to avoid the dentist. Certainly, anxious patients are a common source of stress for dentists who receive very little training in managing and caring for them. One of the most critical steps a dentist can take in handling anxious or phobic patients is to listen to them.

The fears of the patient will be as individualized and unique as the patients themselves. Taking extra care and time to build a relationship with the patients first and address their dental needs second is vital. It's a process of gaining and keeping the patients' trust.

Give patients the opportunity to talk about their fears. Ask them if they have had any negative experiences in the past, if they have concerns about dental treatment, about injections, anesthesia, drilling, etc.

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'Patient retention is where practice profitability is best achieved.' (Photo/Yuri Arcurs, www.dreamstime.com)

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Shade matching for indirect restorations using a remote laboratory

By Barry F. McArdle, DMD

Ideally, shade matching for indirect restorations would occur with a laboratory technician in the dental operatory performing this function directly. Yet, in reality, according to the most recent statistics on the subject published by the American Dental Association in July of 2009, less than 3 percent of all dental offices in the United States have an in-house dental laboratory.[1]

This reality dictates that the vast majority of the more than 40 million indirect restorations placed each year in this country are fabricated at remote dental laboratories and because an exceedingly high percentage of those are tooth colored, shade matching becomes a critical challenge for the dentist in these situations.

There are four key areas involved with accurately accomplishing a shade match for an indirect restoration: the quality of the clinical preparation, the restorative material used, the skills of the lab technician involved and the quality of the clinical records provided to that technician.

This article will explore the last consideration as it is very often the most demanding of the four and to my mind the least well elucidated.

Color

What is shade matching? Shade matching is all about color and so a review of the Munsell color system would be a good place to start. Color is described as the energy of visible light (at varying wavelengths) reflected off a surface as expressed in the elements of that system: hue, chroma and value.

Hue is what the layman calls "color," and it corresponds to the particular wavelengths (expressed in nanometers) at which light is visibly reflected. The visible spectrum of light energy is from about 380 nanometers (shorter, violet spectrum light) to about 750 nanometers (longer, red spectrum light). The hues of natural tooth shades fall between the mid 570s to about the mid 580s (Fig. 1).

Chroma refers to the depth or strength of the hue. The higher the chroma, the more intense the hue (color), while a low chroma results in a more diluted hue (Fig. 2).

Value is the concentration of gray or black in the hue (color) and is directly correlated with the amount of light energy an object reflects (Fig. 3).

Dental patients are notably more sensitive to the value parameter of the Munsell color system rather than hue and chroma in how they perceive a dental restoration's shade.[2] Thus,

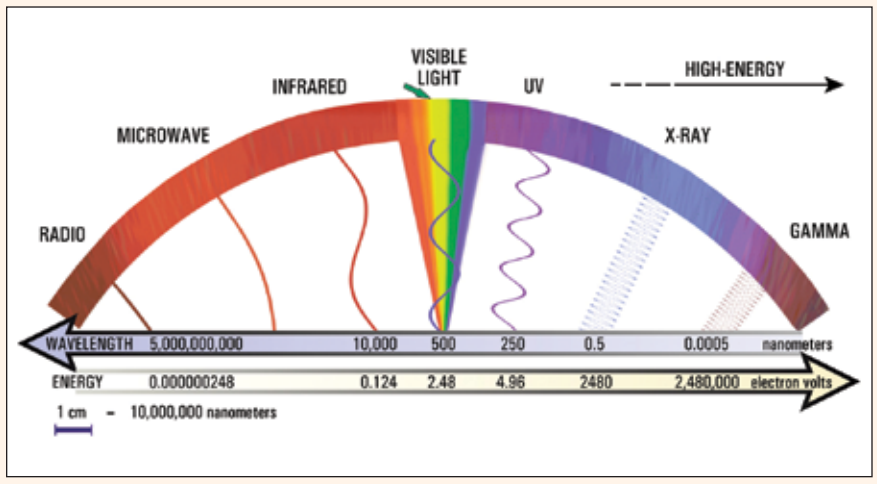

Fig. 1: Most natural tooth hues range in the visible spectrum of light from wavelengths through the mid 570s to about the mid 580s. (Photos/Provided by Dr. Barry F. McArdle)

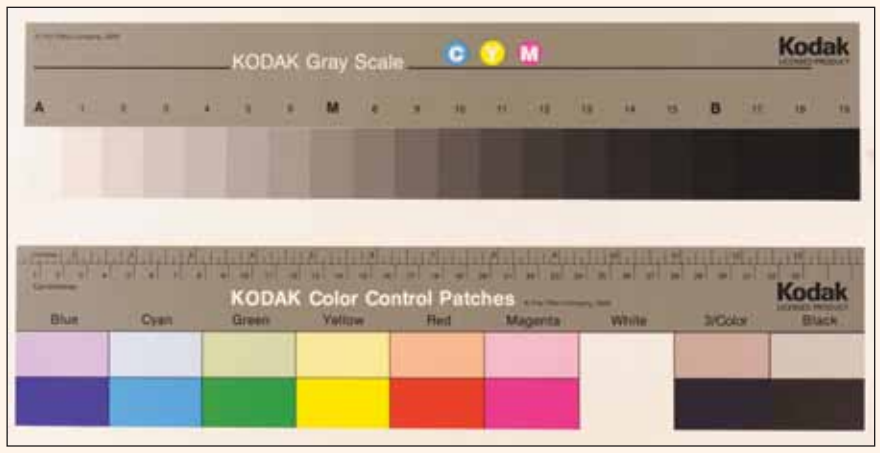

Fig. 2: Chroma measures the saturation of hue.

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The answers to those questions can be every bit as important as the routine health history questions posed. Not only will the patients' stress levels go down, so too will the dentist's.

Many anxious or phobic patients feel very helpless in the dental chair and this can be particularly traumatic. Helping them to feel that they have some control is critical. The most common approach is to establish a signaling system in which the dentist will stop working if patients raise a hand for any reason —– perhaps to ask a question or because they might want to rinse. The key is to ease their fears by emphasizing they have more control of their circumstances.

In addition, it is vital that team members are sensitized to the special needs of this type of patient. Putting the patient at ease the moment he/she walks in the door will go a long way in improving the entire experience. Dental teams should tune into the patient's body language such as breathing rates, perspiration, and not if the patient is unusually quiet or particularly boisterous.

How is the patient holding his/her body? Is he/she gripping his/her hands? Do you see muscle tension?

Dentists and dental teams that take the time to get to know and understand fearful patients often find that they become the most loyal patients, your biggest fans and a fantastic source for patient referrals.

Subtle messages have a big impact

Watch your timing. Neither the patient nor the dental team appreciates it when staff runs behind schedule. It's essential that the scheduling coordinator fully understand how much time is required for procedures.

Additionally, consider checking hygiene patients when it is convenient for you, the dentist, not at the end of the hygiene appointment. This requires a little adjustment at first, but can significantly improve efficiency.

In addition, pay attention to the subtle messages that the employees send to patients, specifically, their smiles. If your assistant can smile with confidence and tell the patient that Dr. GoodDoc is her dentist and he is absolutely the best, this has a huge positive impact chairside in selling treatment. Moreover, it will make the team member feel good about working for your practice.

Most importantly, make it easy for your patients to pursue treatment. They like you. They like your team. They trust your recommendations, but they are afraid of the price tag. Provide financial options. Offer 10 percent off if they pay with cash or check. Consider 5 percent off if they use credit card and pay at the time of service.

Provide outside financing options as well. The 12-months interest-free financing from CareCredit is my personal favorite. All you have to say to the patient is, "How does 12-months interest-free financing sound to you?" and he/she is usually thrilled to pursue your recommended care.

Finally, don't disappear for six months. Keep your name in front of your patients. Send birthday cards, articles, magnets, electronic newsletters, recipes, etc. DT

About the author

Sally McKenzie is a nationally known lecturer and author. She is CEO of McKenzie Management, which provides highly successful and proven management services to dentistry and has since 1980. McKenzie Management offers a full line of educational and management products, which are available on its website, *www.mckenziemgmt.com.*In addition, the company offers a vast array of business operations programs and team training.

McKenzie is the editor of the e-Management newsletter and The Dentist's Network newsletter sent complimentary to practices nationwide. To subscribe, visit *www.mckenziemgmt.com* and *www.thedentistsnetwork.net.* She is also the Publisher of the New Dentist™ magazine, *www.thenewdentist.net.* McKenzie welcomes specific practice questions and can be reached toll-free at (877) 777-6151 or at *sallymck@mckenziemgmt.com.*

it is crucially important to match the value of adjacent teeth in shade selection of an indirect restoration as this is of the greatest significance in its acceptability to the patient.

In other words, whereas the restorative dentist may have some small latitude when it comes to matching hue and chroma in the porcelain, his/her leeway when it comes to value is almost zero for the typical dental patient. Therefore, when selecting hues for shade down to the closest alternatives, A3.5 and B3 are often the finalists (Fig. 4) as their value levels are nearly indistinguishable.

For instance, when looking at a basic Vita shade guide, it is divided into four sections signified by different letters (A through D), and each division is further subdivided by number (1 through 4). The letter designations specify different hues, while the ascending numbers represent degrees of chroma and value.

The vast majority of individuals perceive these changes primarily as they relate to value and much less so in regard to chroma. Those who are color blind, while they probably cannot perceive any significant differences between the guide's letters, will almost certainly do so between its numbers.

As another example, consider the crown shown on tooth #11 (Figs. 5, 6). This longstanding patient in my practice, whom I had always deemed to be somewhat difficult over the years, regarded the crown as "excellent" on insertion. Obviously, this was not true. While checking the photo in Figure 5 for a PowerPoint presentation I was putting together, I accidentally changed it to an eight-bit grayscale image as shown in Figure 6.

As it happened, the cause of our different perceptions of this same restoration was that this patient was actually quite colorblind. Since the value of both tooth #10 and the crown's shade were very close, this patient saw no shade inconsistency here and so the hue disparity between the two was immaterial for him.

The process

When I graduated from dental school in 1985, single shade tabs were still being used in the clinic to match the porcelain for crowns to my patients' adjacent natural teeth. While this method may rarely produce an accurate result (Fig. 7), under most circumstances it is just a case of "close enough" (Fig. 8).

Today, with the newer crown and bridge materials available on the market and the higher sums being charged for their use in fee-for-service dentistry, this obsolete approach to shade selection is no longer the standard of care. Although most dentists I know are more critical of the final results than their patients, "close enough" plainly is not adequate anymore.3

After my first few years out of school, having experienced several remakes because of shade concerns, I began taking multiple shades for each unit with the basic Vita shade guide. I reasoned that while I sometimes might match one or two of the three sections (gingival, body and incisal) on a natural tooth with one shade tab, I would very rarely match all three.

In assigning different shades to the three regions of a tooth for each crown, as I had thought, only rarely did I select the same tab for all. Now I was coming much closer on a consistent basis to the natural teeth I was trying to match, but there was still room for improvement (Fig. 9). Remember that this method takes more time intraorally and dessication of the teeth can occur, which will distort the match. Teeth should always be wet with saliva when shade taking.

Not too long after that, I read an article by a Dr. Alvin Pensler[4] that caused me to think about other factors involved with shade taking that included lighting and background. Lipstick and heavy makeup should be removed before placing shade tabs, while loudly colored clothing should be hidden under a bib. Light blue works best for this as its value is rather neutral, its chroma will not overly bias your evaluation and its hue does not fall within the wavelengths of visible light reflected by enamel or cementum.

The hues of natural teeth are reddish brown (A shades), reddish yellow (B shades), gray (C shades) and reddish gray (D shades), which are equivalent to the wavelengths of light noted previously. Color-corrected fluorescent operatory lights are also important to the three-tab method of shade selection. Their impact on shade matching when using such tabs cannot be overrated.[5] Your dental supply representative should be able to help you with such lighting.

Shade mapping

Another important point I gleaned from Pensler's article was the use of "shade mapping" on the laboratory slip (Fig. 10). Instead of having the laboratory technician guess at where the three different shade regions on the restoration should be transitioned, I was marking them on the prescription by using a shade map on the illustrations of anterior teeth included on the prescription.

Any unusual characterizations that would further add to the restoration's natural vitality were also indicated on

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