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## LETTER FROM THE EDITOR



So excited to relaunch Transcend to our dental community. We will be sending this magazine to all general dentists in Washington twice a year. Each magazine will have the following content:



### TEAM:

Articles that would help dentists be more effective leaders and better their team.



### ESSENTIALS:

Articles on must-know clinical and management information.



### ENVIRONMENT:

Articles on outside factors that impact dentistry, including legislative, insurances.



### TECHNOLOGY:

Technology that can impact and improve the way you practice.



### HEALTH:

Systemic Diseases and dental impact.

We are always looking for interesting articles. If you have an article you would like to be considered in Transcend, please email [valerieb@washingtongad.org](mailto:valerieb@washingtongad.org).

Thank you Dr. Melissa Ramsey, Dr. Carl Youngquist, Dr. Ana Wannarka, Dr. Christopher Shyue and Valerie Bartoli, our amazing editorial board!

Happy Reading,

Dr. Teresa Kang, WA AGD Editor  
WA AGD Past President

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# The Practice Changing Magic

## EVERYTHING YOUR ENDODONTIST WANTS YOU TO KNOW BUT IS AFRAID TO SAY

BY DR. JOHN WEST



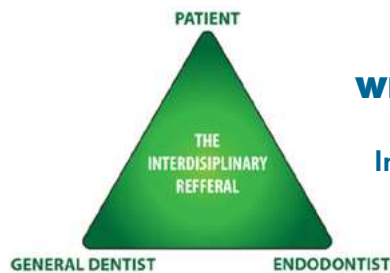
As an endodontist, I have been invited by the Washington Academy of General Dentistry to write an article for your biannual Transend publication about the restorative dentist/endodontist relationship entitled, "Everything Your Endodontist Wants You to Know but is Afraid to Say." At first, I was thinking the article was to offer a report on all the things the general dentist was doing wrong from the endodontist's perspective. This thinking was shortsighted and what I heard the request to mean could not have been further from the truth. Collaboratively and collegiately exchanging general dentist/endodontist ideas, needs, wants, and requests is about aspiring to something bigger. That bigger is no other than our patient.

PDF's referred to within this article can be found on the Washington AGD Website's home page at [www.washingtonagd.org](http://www.washingtonagd.org)

This is an article about the success of the dental patient.

The title that was assigned to me first seemed to be directed exclusively to the endodontist's referring dentists. Again, my assumption could not have been further from the truth. This article is about three domains: Communication, Communication, and Communication. Everyone knows that communication results in better dentistry and better patient outcomes. But do we really communicate? Are we simply too busy or is it that the dentistry we know how to do seems more important than doing the best comprehensive diagnosis and treatment planning for the patient? In my experience, the interdisciplinary collaboration and treatment sequencing is prerequisite to a joyful and satisfying dental career. It is also prerequisite for our patients' best treatment.

And when the dental patient succeeds, the dentist succeeds, the interdisciplinary team succeeds, and the dental practice succeeds then the practice of dentistry itself succeeds. Simple. "Fortune favors the brave" is the Latin translation of a proverb. To experience the promised "Magic" of this article will require a certain amount of bravery because it will mean becoming comfortable with being uncomfortable. This transformation is true for the dental specialist, in this case the endodontist, the referring restorative dentist, and your patient. A three-way WIN/WIN/WIN.



The  
**WIN/WIN/WIN**  
of  
Interdisciplinary  
Dentistry

This is an article written about someone who will never read it, but whom the article is all about...our patients. Using the interdisciplinary mind, our patients will soon discover that you are not just about a tooth but that you are about oral health; that you are not just about restoring a cavity; but you are about their well-being; and, finally, that you are not just about the patient's veneer; you are about embracing them as a person.

My thesis, however, is a deeper question of anticipating and preparing for the dentist of the future and the future of dentistry. Like medicine, are dentists going to be further controlled by government, insurance companies, DSO organizations and lack of group leadership? Are we going to preserve and even grow our boutique careers that truly represent us or is that a fantasy? Will we

be truly caring for patients, or will we be caring about speed and the bottom line? When patients get it that we hear them and we see them, they feel safe. Only then can they hear us and hear what is possible for their smile and their oral health. We have all heard that patients don't care how much we know until they know how much we care. They really do want to look good, feel good, smell good, and appear successful. They know that teeth are essential for this goal. Sometimes, all that a patient needs are trust in you and to give themselves permission that they are worthy of investing in a beautiful smile and healthy mouth.

The purpose, therefore, of writing this article is not to point a finger, assess blame, belittle, discredit, or deprecate Washington State restorative dentists. It is quite the contrary. Washington State dentists have been able to boast the most successful quality patient-oriented practices in the country and there is no letting down. In fact, shame on the Washington State Endodontists for not creating better relationships with you sooner so that this article would never have even been required or requested. Endodontists, too, need to foster the essential three words for success: Communication, Communication, Communication.

Now a word to restorative dentists. I request that you give your Endodontist a little grace. We are what I refer to as "one tooth" dentists. In fact, our world is as narrow as it gets in dentistry. We are peering through a microscope at ONE canal in ONE tooth and we DO IT IN THE DARK. We cannot SEE and DO at the same time. We may think we can, but we can't. This is unique to all of dentistry. We can only see the first millimeters inside a canal and then we make an educated guess about the patient's root canal system anatomy using pretreatment CBCT 3D imaging, an apex locator, feel, and the wisdom that comes from previously making every possible mistake. We are very much alone, and a feeling of loneliness can overcome every endodontic clinician. For example, a few years ago, there was one group that I was teaching in Vancouver, BC, where the clinical assistants take a nap when an endodontic treatment was on the day sheet because it was boring, and they had nothing to do! Solo endodontics for any dentist can be lonely, indeed! It feels sometimes like no one cares but the dentist himself. Meanwhile, your patient assumes you are performing optimally at all times!

This article is as much about Washington States Endodontists, and for that matter all Endodontists, as it is about what Endodontists want the referring General Dentists to know. After this article is published, I invite restorative dentists reading this article to write a sequel titled, "Everything the Referring Dentist Would Like to Tell the Endodontist but Were Afraid to Say."

The backstory of this interdisciplinary subject was born out of a need. The need belonged to Dr. Ralph O'Conner, a 1970's progressive thinking dentist from Lakewood, WA. He was the founder of the Tacoma Study Club which was the world's beginning mecca for the transformative and breakthrough operator delivery systems and workflow including laydown dentistry, four handed dentistry, and the critical, and rarely practiced today, "Patient Interview" scheduled before ever seating the patient in the operator. Ralph was mentor for our Northwest Network for Dental Excellence in Tacoma, WA. This group is represented by all dental specialties and has impacted global interdisciplinary dentistry in more ways than ANY other single group in the history of dentistry and continues to do so. Individually and collectively, the Study Club members have profoundly enhanced the level of global dentistry. For a full and hugely valuable

one hour of me interviewing Ralph O'Conner, visit: <https://youtu.be/qduDd8g-2KY>

Ralph called specialists "Limited's" because our knowledge, skill, care, and judgement were limited to a narrow scope of dentistry. He was and is still right. Specialists think they know everything, and it is the general dentist's job, who knows about a lot of dentistry, that he or she is the dental treatment quarterback and all roads leading to comprehensive dentistry must go through the QB. Period.

### LESSONS LEARNED

I surveyed the endodontists of Washington and although the response was minimal (because we are down in that dark canal and are ignoring the rest of the world) but I did receive input and together with my want list, we offer **TEN LESSONS** for all of us to benefit from and to strengthen our tomorrow's patient treatment outcomes and positive experiences. If restorative dentist and specialist do not sequence and monitor patient treatment, we become what I call "four-walled dentists." We go to our four-wall office day in and day out, we do our four-wall dentistry, and then we leave our four walls and go back out into the world. Meanwhile, we have missed a universe of a world right there in the four walls of our office. We cannot do what's possible for our patient if we cannot see it and we cannot see it, if we cannot know what is possible. Only by opening our walls to the flood of interdisciplinary dentistry, can we know how, when, and why the different dental specialties can contribute to comprehensive biologic, esthetic, structural, and functional patient oral health.

The intention of this article is to promote honest communication about the relationship of the referring restorative dentist and the endodontist. Listed are ten examples of what your endodontist wants you to know to make us more effective, more efficient, and more valuable in terms of your patient's return on investment, time, optimum choices, predictability, and their faith that your interdisciplinary team will deliver.

## Ten Interpersonal AGD General Dentist/Endodontist Lessons

*Make a Powerful referral.*

### 1 MAKE A POWERFUL REFERRAL

- Make a compelling referral. A weak referral is telling your patient that you need to see an endodontist and give them two or more names. The patient wants, instead, to hear you say, "I am bringing in my endodontist for this part of your treatment because I want the same high level of care for you as you experience in my restorative practice." Without this explanation, your patient feels like you are sending them away into an abyss. How do they choose? If you "send" your patient to two different specialists at the same time, such as an endodontist and periodontist, they feel torn apart. They feel loss of control and so should you. Dentists should have two endodontists that you consider competent. Then mix and match the personality of your patient and the endodontist.
- Do not refer to an endodontist because they are the closest to your office. Refer to your #1 choice; to whom you would refer yourself to. Most patients trust their dentist. They refer friends and call you, "My dentist." You have earned their trust and they do what you recommend for them. On all treatment options, patients ask, "Doc, what would you do if it were you?" Tell them the truth. What WOULD you do? Therein lies the answer for

your patient as well. Before you answer your patient, always look in the mirror and tune into radio station WWIDIIWM. "What would I do if it were me?" They will smell it if you tell them your radio station truth. This is what they want and need to hear, and they need to hear it from you!

- Tell your patient that regarding the distance to endodontist's office, reassure your patient that endodontics is often a Single Visit so that even if there were a distance, it would not be like having to go to the orthodontist many times over multiple years.
- Tell your patient that they are in luck. Your endodontist is right here in your city. They do not have to fly to Mayo Clinic or San Francisco. The BEST (you can only say this if you believe it) is right here in the Pacific Northwest!
- Tell the endodontist not only the history of the endodontic tooth, but tell the endodontist about where the patient is in your practice such as new patient, middle of a large treatment plan, maintenance patient, etc.
- Tell the endodontist about the patient's dental IQ and dental value. A huge benefit is to know, for example, if the patient is an energy sucker, time burner, skeptical, asks lots of questions, trusts our judgement, accepting, etc. These patient characteristics are not meant to demean the patient in any way. Rather they are meant to help make a successful referral. For example, if the endodontist were to know in advance that your patient needed everything fully explained every step of the way then the endodontist could easily plan for this, and put on their patient "Doubting Thomas" hat. Then the endodontist will plan the time to allow patient questions and answers. The endodontist then listens intently, facing the patient, at the same level as the patient and writing with a pencil and new legal pad.
- Ask the patient that if they could wave a "Magic Wand" or snap their fingers and have everything they wanted different in their teeth, what would it be? When they pause as if finished, end with the question of what else do you need to know from me to proceed with what you want? Do not appear or be rushed. You have all the time in the world for them. This is where the "Magic" happens. Your sitting, facing your patient, looking at them, the staff knows not to interrupt. Perhaps for the first time your patient profoundly knows they are not teeth to you, but they are a person who has teeth.

Instead of a big case presentation at the end of the examination or at a case presentation appointment in a week, your patient has started with the most important answer, "This is my new dentist. I trust this doctor." Starting with your patient's urgent need, which you must treat right away, you have your patient already telling you exactly what they want. This is where you come in. In Napoleon Hill's his famous book, 'Think and Grow Rich', he advised six words to create a successful future: "Find a need and fill it." Your patient just identified their dental wish list. What are you waiting for? Fill them!

- Benefit from the endodontist being your least paid motivator. Most dentists do not need more patients. Instead, you need to do more for the patients you already have. In our endodontic practice, we tell every patient what's possible for their smile and dental health after, of course, attending to their urgent endodontic need. You send one tooth to the endodontist but every patient we see requires anywhere from \$500-50K of needed dentistry. Almost every patient we see for endodontic treatment has crooked, dark, chipped teeth, calculus on the lingual of their mandibular anterior teeth, or is missing a tooth or teeth.

Sometimes, all your patient needs is a little permission to take the next step to accept your treatment plan. You just have to say what is possible, the benefit, the time, the investment, and then walk away. Learn to accept whatever is their answer. If they choose short of your treatment plan, no worries, just tell them to tell you when they are ready. In the meantime, let's maintain your plaque and caries control so everything will be ready to go when you are ready.

## 2 BRING IN YOUR ENDODONTIST WHEN PROBLEMS ARE SMALL

- Do not wait until a problem's simple solution is too late: Broken file, block, ledge, transportation, perforation, wrong tooth, or wrong diagnosis. This speaks for itself. If you cannot make the diagnosis in short time, you cannot easily find a canal, or you cannot slide down the canal to length in the first time or two then quit. Be smart and bring in your endodontist before the treatment becomes impossible or there is catastrophic blunder that cannot be corrected without advanced treatments. It is hard to make the restorative dentist a hero in these circumstances. Better for us to say to your patient that, "Dr. Restorative Dentist is very smart to bring us in when it is easier to solve this problem. Other dentists often wait until it is too late." We want your patient to be saying to themselves, "I am with the right dentist in Dr. Restorative." He or she knows their strengths and limits. See the attached Diagnosis PDF.
- Remember your patients want to feel safe, be heard, and know that their wellbeing is your biggest interest.
- "Get the endodontic monkey off your back" and invite the endodontist to carry and solve the monkey on your back problem. Then you can proceed treating your patient that needs six veneers which is a place that you enjoy and can impact the life of patient.

## 3 HANDLING THE PATIENT THAT WANTS A NEW DENTIST

- Often, and now more so than ever before, patients see us, we solve the situation predictably, they have a positive experience, and then they say, "I am looking for a new dentist." Our job is to find out why and have your permission to share that reason back to you WITHOUT JUDGEMENT, OPINION, OR BIAS. Sometimes they report that my dentist just pops in, says a few words, and pops out. The clinical assistant says what I need, and I am supposed to schedule time. My dentist does not ask me what I would like to change in my mouth. The dentist TELLS me. I feel rushed. I see a different dentist every time I go in there. They don't explain anything and so on.
- Meet with your endodontist and welcome the feedback. We are just the messenger. Whatever the feedback is, positive or negative, it is better being shared in a one on one vs. Yelp! This gives you an opportunity to solve the breakdown because, if it is negative, there may be a trend you want to change and one you may not even be aware of. This feedback circle goes both ways!

## 4 BEING HONEST ABOUT SPECIAL EQUIPMENT

- Your patients often present with the comment, "My dentist says you have special tools." This is true but that is only a half truth. Our real "special equipment" is advanced 2-3 year specialty training and years of experience. The "special equipment" is SKILL. Don't water it down. Maybe the treatment is outside your skill level. I could not do a veneer if my life depended on it...not a good one, anyway.

- This is not admitting failure, it is celebrating knowing the patient benefits from your Team. Patients get this right away. Some dentists think they are sending production out the door. The smart dentists we know in the Pacific Northwest have their interdisciplinary Team and are, by far, the most successful and satisfied dentists we know. The Interdisciplinary Team opens all the Team's eyes; especially the restorative dentist who now has interdisciplinary skills at their disposal to free you to focus on what you enjoy and are good at...probably profitable, too.

## 5 DIAGNOSING THE "CRACKED TOOTH SYNDROME" (CTS)

- The illusive "Cracked Tooth Syndrome" exists in anywhere from 10-25% of your practice's patients right now and is undiagnosed. Diagnosing sooner than later can prevent an endodontic misdiagnosis or prevent an unrestorable vertical fracture.
- See the attached time proven diagnosis and treatment for CTS PDF.

## 6 BE GUIDED BY AAE GUIDELINES FOR DIAGNOSTIC, TREATMENT PLANNING, AND ENDODONTIC TREATMENT COMPETENCY

- Endodontists set the standard for endodontics. If the endodontist's standards cannot be met, such as need for microscopy, 3-D imaging, regenerative procedures, radicular surgery, treatment of complex injuries, then the general dentist should refer the patient to the endodontist. In documenting general dentist endodontic competency AAE Case Difficulty Assessment notes "that dentists should upgrade one's skills to meet the standard of practice established by the endodontic specialty."
- For more information about Endodontic Competency, please read the white paper available at [www.aae.org/specialty/wp-content/uploads/sites/2/2017/09/endo-competency-white-paper.PDF](http://www.aae.org/specialty/wp-content/uploads/sites/2/2017/09/endo-competency-white-paper.PDF)
- The AAE considers the following as "high difficulty" and that all dentists be able to defend their endodontic treatment skills to successfully treat, for example, extreme curvature (greater than 30 degrees), S-shaped curve, indistinct calcified canal path, nonsurgical or surgical retreatments, anesthesia difficulty, limited opening, extreme tooth inclination or rotation, resorption, immature tooth, horizontal root fracture, endo/perio lesion, confusing diagnosis, extreme difficulty in taking accurate radiographs, interpreting radiographs, performing pulpal tests, and trauma conditions.

## 7 PAVING YOUR WAY WITH WORDS

- Tell every patient every time you prep a tooth that your clinical impact may be the final stimulus to cause pulpal breakdown requiring you to perform endodontics or you may want to bring in your endodontic specialist.
- Pave your way with words.

## 8 DO'S AND DON'TS TIPS

- Don't prescribe antibiotics for a toothache, which is a pulp ache, which means the diagnosis is a pulpitis not a periradicular infection.
- Don't ask us if the tooth is restorable. You already know this. There must be 4mm. of ferrule from bone to height of ferrule or, if not, can 4mm be created through forced orthodontic eruption or osseous recontouring. See PDF on Endodontic Diagnosis: Mystery or Mastery?

- Don't anesthetize a patient that you are sending right over for diagnosis and emergency treatment. If anesthetized, we cannot duplicate the symptom or perform the needed tests to prove the diagnosis.
- Do be cautious. If pulpal symptoms, cement the crown with temporary cement or leave the provisional in place until symptoms subside. Pulpals can die slowly and quietly so be sure to pulp test before cementing with permanent cement. Also, take a PA as a quiet lesion of endodontic origin may be present; particularly if the pulp has been symptomatic. The worst thing to do is permanently cement a crown that turns into a pulpitis. We get this almost every day from one of your patients, "What, you are going to drill a hole through my new crown! Who is going to pay for that? Shouldn't my dentist have known this before they cemented the crown?!" Hard to make you look good.
- Do PAVE YOUR WAY WITH WORDS. Again, whether you are restoring a buccal pit cavity or full mouth rehabilitation, let these words flow from your mouth, "It is an infrequent possibility but as we restore your teeth to health and a beautiful appearance, occasionally the tissue inside a tooth or teeth will need to be removed and, and if this were to happen, we would do root canal treatment to predictably save your tooth, or sometimes I will bring in our endodontist." No need to make a big deal out of it. Say it and get on with your treatment plan explanation. This is simply informed consent. Note it in your chart that the patient has been informed about possible endodontics.
- Do probe the apparent toothache tooth. It may be periodontally hopeless or an obvious fracture. Of course, if unsure, get that endodontic "diagnostic monkey" off your back and bring in your endodontist.
- Do not refer a sinus tract tooth as an emergency. It is not.
- Do establish with your endodontist what constitutes an emergency.
- Do not tell the patient the endodontic fee. We do not know what it is until diagnosis. Tell the patient they will know the fee after diagnosis and before endodontic treatment. If the patient insists to know a range, tell them it is about the same as new TV. And, of course, there are different qualities of TV's. Your patient understands this.
- Do not think you have to be perfect. We ALL make mistakes. We all have unintended outcomes from time to time. We are human and we do not make perfect results every time. In fact, to be honest, most dentistry is not perfect but rather a degree of perfectionism. Dr. Bob Barkley, the father of preventive dentistry, is quoted as saying, "Dentistry makes patients worse at the slowest possible rate." He was right. We do our best and sometimes best is not enough.
- Do not attempt an endodontic treatment unless you have a strong confidence that you are competent to treat successfully. Remember, you are held accountable, as with all specialty care, to the standards of, in this case, the endodontist.
- Don't tell the patient that the treatment will be done first visit unless that is what you and the endodontist have agreed to.
- Do tell the endodontist what you know about a treatment that you have attempted. For example, "I found all the canals but cannot find the MB2 canal of a molar or I did not try to go down the canals." Another example, "I have tried to get down this canal for an hour and so I gave up. Can you finish?" Knowing

EXACTLY what you have done or attempted to do and how long you spent on attempting the desired outcome is hugely valuable. Treating a patient with a broken file in a canal without your telling the patient once again makes it hard to make you look good or to stay away from a litigious situation.

- Do keep accurate records. “Good clinicians keep good records.”
- Do be honest about a new associate becoming your “in house” endodontist.
- Change is the only constant and one constant change that I am observing as a teacher is that groups are sending their new dentist to learn as much as they can about endodontics so that they can keep endodontic patients in their practice and reduce the number of patients being referred to the endodontist. Typically, this new dentist enjoys endodontics and is happy to attempt to fill the endodontic needs of the practice, group, or larger dental company. The goal is to make them the “in house” endodontic dentist. But not so fast!
- Upgrading the new dentist’s skills is the right thing to do but you must remember that the “in house” endodontic dentist is NOT an in-house endodontist. They are held to the standards of an endodontist and a certain liability is especially present in today’s litigious society.

## 9 PAYING FOR YOUR MISTAKE.

- Do not feel guilty. It is too often that you offer to pay for our treatment. This is simply guilt or you feel bad. This is understandable but you did the best you can, and you should be paid for your effort.
- If you want to eliminate YOUR fee, that is up to you but do not offer to pay our fee. First, we are not going to do that and second it puts us in the awkward position of potentially spending a couple of hours to fix the problem with no payment. This creates hard feelings. We do whatever is needed to bail you out. This is one of our jobs and we take it seriously. If this were to mean performing our marquee skills to resolve the situation at no charge to anyone to save the day, I encourage you to have a conversation with your endodontist that you should feel comfortable asking whatever you need in support of your patient.

## 10 MAKING YOU LOOK GOOD.

- Certainly, I encourage the endodontist to do whatever is necessary to make you look good and that you did all the right things. We do whatever is needed to bail you out. This is one of our jobs and we take it seriously.
- I encourage you to have a conversation with your endodontist that you should feel comfortable asking whatever you need in support of your patient.
- Interview your endodontist and let them interview you. Tell each other the conditions of satisfaction required for the two of you to collaboratively treat patients. Schedule time to diagnose and treatment plan patients together especially in your early relationship. Make no assumptions. Discuss the best way to enroll your patient in your practice. For example, it is not uncommon that we see a new patient with a toothache and the patient has not even met you! A patient called your receptionist saying they have a toothache, your receptionist gives them several endodontist names, they choose us and here they are. They are NOT a toothache. They are a human being, they have feelings and concerns, and they represent a patient for a lifetime. I invite you to think this way. See the PDF on the Interdisciplinary Referral.

## CLOSING COMMENTS AND TAKE AWAYS

The purpose of this article is to increase the predictability of endodontic success, positive patient experience, and to validate the power of collaborative general dentist/endodontist communication from a more comprehensive interdisciplinary context. Patients win, dentist wins, specialist wins, and dentistry wins.

My report may at times seem harsh but that is not the case. It is my purpose that this endodontic/restorative exchange will be a reference and foundation for the Washington State AGD dentists to have a frank and transparent dialog with your dental specialists and particularly your endodontist who is the focus of this article.

I invite each of you who have read the article this far to meet with your endodontist and become ONE expert for your patient’s delivery of predictable endodontics.

Interview each other and ask each other what each of you will GIVE in this relationship and what each of you expects to GET. Use the goal of the best treatment for the patient because this is every dentist’s pledge. You have my permission to forward your endodontist this article to help pave your way for honest communication always focusing on what is best for your patient.

This article is not the end of the general dentist/endodontist exchange. Instead, I see this article as the end of the beginning. What is best for our patients is known by you...not insurance companies, not government, and not a Big Boss. An accurate diagnosis and treatment plan and its sequencing is every dentist’s responsibility and cannot not be delegated and should not be dictated.

Dentistry will remain, free or not. In many aspects of medicine, the patient has become a procedure or an insurance code. In dentistry, we still have real people as patients, we still have real dentists as dentists, and we still can look our patients in the eye and listen to what they want. We still can hear them. A nurtured culture of better interdisciplinary dentistry through better communication is a critical tenant in offering our patients, “What is possible” vs. “I have to wait until next year for my insurance to cover a crown.”

The dentist of the future and the future of dentistry will be by default or by design.

**You choose.** ♦

PDF’s referred to within this article can be found on the Washington AGD Website’s home page at [www.washingtonagd.org](http://www.washingtonagd.org)

# What the Orthodontist Wants You to Know

## WHAT INFORMATION IS SO SENSITIVE THAT THE ORTHODONTIST WOULD BE AFRAID TO SAY IT?

BY DR. AARON CHRISTOPHER



Dr. Aaron Christopher received his BS in Biology from Cal State University, Northridge, completed his DMD training at Harvard School of Dental Medicine with an honors in research, and completed his specialty training in Orthodontics at University of Washington. He has been in private practice since 2013 and is the owner of three practices in Eastern Washington and Eastern Oregon - Walla Walla Orthodontics, La Grande Orthodontics, and Christopher Orthodontics.

If, after reading my article you have questions or comments, feel free to reach out to me at [aaron.b.christopher@gmail.com](mailto:aaron.b.christopher@gmail.com).

How do I convey this sensitive information to you? And why should I be the messenger?

I have been in private practice for 8.5 years (I realize I sound like an 8-year-old kid telling everyone he's 8 and a half to sound as "big" as he can). In these short years, however, I have treated over 4000 cases and have rubbed shoulders with some truly amazing dentists and specialists. I have been a member of several orthodontist study clubs, representing over 6000 orthodontists, and have listened intently over the years. As voiced by my colleagues, there do exist areas of friction, miscommunication, and misunderstanding that can potentially arise between dentists and orthodontists. In trying to maintain healthy professional relationships, the natural tendency is to be afraid to rock the boat and to skirt these issues. I have a different philosophy. In my offices, we preach a culture that uses "productive conflict" and "carefronting" to bring the unsaid to the forefront and get us out of "artificial harmony." We speak heart-to-heart without fear. We gain understanding, expose blind spots, learn from one another, and ultimately create stronger, deeper, and real relationships – and the impact this has had on the patient experience has been huge.

Are you ready to dive into the things orthodontists are afraid to tell you? I hope to channel the collective voice of my specialty as I provide some clinical insights that will help you understand how the orthodontist thinks and how you can help your patients get better outcomes. I will further shed light on how dentists and orthodontists can develop even stronger relationships. I'll even mention a few relationship killers to be avoided! Let's dive in!

### Part I - Clinical Insights

My residency training had a profound impact on me. It trained me to think more globally beyond a single tooth or group of teeth, to understand the role each tooth plays in proper occlusion, to respect the biologic limitations to tooth movement, to appreciate the growth and development of the teeth and jaws, and so much more. In short, it taught me how to think differently. Understanding how we think and operate as orthodontists will shed critical light on questions you have about our treatment plans. As you read this, remember that at the crux of every well-treated orthodontic case is careful diagnosis and treatment planning. Diagnosis takes numerous aesthetic, functional, and structural factors into account – factors too numerous to list out and of which I was largely blind to at the conclusion of my dental school training.

With this as a backdrop, let's jump into the clinical issues orthodontists are afraid to tell you!

## Tooth Extractions Are Not to Be Feared

Tooth extraction has created controversy in orthodontics. In the early days of orthodontics, tooth extraction was nearly non-existent at the expense of facial profile, lip competence, alveolar health, and post-treatment stability. Dismayed at all the negative side effects, a revolution began in orthodontists around the 1940s and the pendulum swung from one extreme to the next and extractions became the norm for a time. Where does the profession stand today? Extractions remain an option in select cases.

To help you understand the thought process behind an orthodontist's recommendation for extractions and to alleviate any concerns, let's explore five important points:

### 1) *There are multiple indications for extractions.*

Though the most common, severe crowding is not the only indication. Here are a few other examples that occur frequently:

- Correction of a Class II malocclusion through extraction of maxillary premolars
- Correction of unaesthetic lip fullness in bimaxillary protrusive patients through extraction of maxillary and mandibular premolars
- Extraction of impacted teeth to reduce risk, complexity, and orthodontic treatment length
- Extraction of severely compromised teeth and subsequent implant planning, or space closure for the purposes of implant avoidance

### 2) *Extractions are required in certain cases due to the periodontal, aesthetic, and occlusal limitations to expansion.*

Many dentists increasingly opt for non-extraction treatment plans that resolve all crowding through expansion. While maxillary expansion is an amazing tool, some crowding or bite corrections cannot be addressed in any pragmatic way without extractions. In the mandible, skeletal expansion is not possible, only dental expansion. In the maxilla, skeletal expansion is always accompanied by dental expansion, even when using TAD-borne or mini-screw-assisted expansion devices (MARPEs). All dental expansion pushes the teeth toward the edge of the cortical plate, and if pushed too far will create a thinning of the cortical plate, gingival recession, shortened roots, and a compromised occlusion and dentition. Furthermore, excessive dental expansion creates flaring of the anterior teeth, which can severely impact smile aesthetics and lip competency. If your orthodontist asks for dental extractions and you are concerned, don't hesitate to begin a conversation. This is an opportunity to learn from one another.

### 3) *Extractions do not destroy airways.*

Despite what is taught in some airway-centric study clubs, the weight of the scientific evidence is that extractions do not destroy the airway or lead to sleep disordered breathing. When cherry-picked you can find studies, articles, or publications that show a correlation between extractions and airway health, but the vast weight of evidence out there shows no correlation between the two.

Research aside, let's walk through the math of a typical extraction scenario: elimination of severe crowding. In these cases, the crowding usually exceeds 8 mm as this is the "tipping point" for most

orthodontists. Removal of two premolars creates roughly 15 mm of space in the arch. Subtracting 8 mm from 15 mm gives us 7 mm of net space to address. As the orthodontist resolves the crowding, the posterior teeth move mesially by 3-4 mm on each side of the arch, roughly eliminating all net space. After treatment, the tongue space is not diminished from lower incisor retraction and is in fact increased in many instances because previously crowded teeth that were misaligned lingually are now positioned further from the tongue. Now, if biology does not allow for as much mesial movement as anticipated, we can use temporary anchorage devices (TADs) to close down the residual space without any impact on anterior tooth inclinations. Additionally, crowding that exceeds 8mm can actually lead to a net proclination of anterior teeth following premolar extraction and subsequent orthodontics because the net space to address is less than the mesial movements of the posterior teeth.

### 4) *Extractions do not destroy smile aesthetics.*

There is a false belief that extractions will lead to a "dished-in" profile with retracted lips or reduced lip support, and will contribute to large unaesthetic buccal corridors. The example given above should help us understand the somewhat neutral impact typical extraction patterns have on lip support in severely crowded cases. Buccal corridors, though the focus of much discussion, are not shown to reduce smile aesthetics in the eyes of lay people unless they are quite severe, as reported in a handful of studies. Also of note are the many attractive celebrities with large buccal corridors who managed to be rated "Sexiest Alive" by People Magazine, such as Brad Pitt, George Clooney, Matthew McConaughey, and Ryan Reynolds. Regarding facial profile, in a compelling study evaluating 120 patients (who were either treated with premolar extractions or non-extraction), the 100 judges recruited to assess their smile aesthetics reported that 63% of the profiles improved through treatment in the extraction cases, while only 27% of the profiles improved in the non-extraction cases.

### 5) *Canines are not too sacred to extract.*

As taught in dental schools around the world, canines are widely considered one of the most important teeth in the mouth. Its morphology and root length uniquely suit it for its function in excursive movements, its role in "canine guidance" serves to protect the dentition from wear, and it forms the corners of a perfectly aesthetic smile. That said, there are still occasions when canine extractions are warranted. I will mention two:

- When severe crowding and severe canine impactions exist in the same arch. In these cases, often the most pragmatic choice is to have the canines removed instead of the premolars, thus reducing orthodontic treatment length and risks of root resorption. Additionally, we eliminate the risk of finding out the impacted canine is ankylosed after premolar removal and are therefore forced to place an implant in the canine position. (see Figs 1a, 1b, 2a, 2b)
- When severe crowding places canines in a periodontally compromised position with reduced gingival and bony support. Removal of the teeth with the worst prognosis is often the best choice. In these instances, we rely on the general dentist's expertise regarding long-term prognosis of specific teeth to inform our decision-making as a team.

Following removal, we guide the first premolar into the canine site and carefully position it for appropriate function on excursive movements. We then work with the general dentist to achieve ideal smile aesthetics.



Figure 1a – Patient (14yo male) with impacted canines



Figure 1b – Patient (14yo male) with impacted canines



Figure 2a – Patient following canine extractions and orthodontics



Figure 2b – Patient following canine extractions and orthodontics

## Maxillary Expansion Is Not Just for Crossbites

The most classic use for maxillary expanders in orthodontics is for the correction of posterior crossbites in young children, leading many dentists to question why we would expand a child in the absence of crossbites. Here we will explore three additional uses:

### 1) Absolute posterior crossbite.

Some cases do not appear to have posterior crossbites but have what is referred to as an “absolute posterior crossbite.” Relatively speaking there are no crossbites as the maxillary posteriors are fitting appropriately with the mandibular posteriors in the transverse dimension. However, clinically and radiographically it can be seen that the mandibular molars are inclined excessively toward the lingual. If uprighted, the crowns of these mandibular posterior teeth would tip buccally, with the center of rotation near the root apices, and enter into crossbite with the maxillary posterior teeth. In an absolute sense there is a crossbite since proper alignment of mandibular teeth would create one. Orthodontists expand the maxilla in these cases along with uprighting the mandibular molars.

### 2) Arch development.

One of the goals of early patient monitoring prior to orthodontics is to evaluate eruption path, especially of the canines, and overall room in the jaws to accommodate the developing teeth. If impactions or crowding are severe enough, early expansion is used to develop maxillary and mandibular arch width. We thus provide room for permanent tooth eruption, prevent impactions and root resorption, and allow for better positional stability and periodontal outcomes.

### 3) Airway expansion.

Maxillary expansion can enlarge the nasal cavity and the portion of the pharynx directly posterior to the nasal cavity—the nasopharynx. When there is a diagnosis of obstructive sleep apnea (OSA) and there exists an area of constriction in the nasal cavity and/or nasopharynx, maxillary expansion can enlarge these constrictions and subsequently improve the apnea-hypopnea index (AHI), as has been shown in several studies. This improvement has been shown to be on par with adenotonsillectomy, but more stable in the long-term. Given that adenotonsillectomy is such an invasive procedure with a high rebleed rate, and the fact that the side effects of maxillary expansion include more room for developing teeth, it seems reasonable to prescribe maxillary expansion as a first measure in OSA cases with upper airway constriction. I have done so several times working in conjunction with sleep doctors.

As dentists and orthodontists, however, we need to stay in our lane. Only a physician can diagnose OSA via polysomnography. This can be quite difficult to obtain on children; therefore, many orthodontists will err on the side of expansion when 1) their clinical observations and findings and/or patient/parent reporting indicate a sleep challenge, and 2) there is also a clear orthodontic benefit from expansion. In these cases, we provide the orthodontic benefits with the additional intention to increase airway volume. We do not, however, propose an OSA diagnosis, and do not promise to cure or prevent it.

## Avoid Impacted Canines Through Early Radiographic Monitoring

We can successfully avoid nearly all canine impactions through early radiographic detection and appropriate intervention. The American Association of Orthodontics (AAO) recommends every child see an orthodontist by age 7. Reviewing space requirements and eruption path of permanent canines is one of the primary objectives of the orthodontist for those aged 7 to 12. I help families understand the reasons behind monitoring at such an early age with phrases like: “teeth have a mind of their own,” “nature doesn’t always get it right,” and “canines are like unruly children and cannot be left unsupervised.”

Sadly, some patients are told to delay seeing an orthodontist until their last baby tooth falls out. Over-retained primary teeth can be a sign of severe impactions which, if not detected in time, can lead to lengthy and costly treatment plans for patients (see Figs 3 & 4). Orthodontists are often the first to detect these via panoramic radiograph or CBCT. As we review the eruption path of canines, there are three possible interventions: continue monitoring, remove primary canines (with or without removal of primary first molars), or Phase I expansion with or without primary tooth removal. With these interventions, we deal in percentages and likelihoods, not in absolutes. That’s why patient education is key here. In my office I always explain to families that I am providing “a path of least resistance” for the developing canines and that I’ve “rolled out the red carpet” for them. The canines usually choose to follow the path provided and love walking down that carpet. But there are no guarantees, and canines can sometimes “go rogue.” By educating patients and their families, we can successfully avoid most upsets when those unlikely scenarios do happen.

If you choose to not refer a patient to an orthodontist for active growth monitoring between ages 7 and 9, it is important that you obtain a panoramic radiograph by age 9 to assess the position of the developing canines and continue to monitor, refer, or treat as necessary.



Figure 3 – Impacted canines causing root resorption of lateral incisors. Early detection and appropriate intervention can often eliminate these complications.



Figure 4 – Patient (15yo female) with impacted #27 detected for the first time in the orthodontic office. Tooth has migrated too far to be successfully correct orthodontically.

## Space Maintenance Following Primary Tooth Extractions Can Prevent a Lot of Headache

When any primary tooth requires extraction, it’s important to consider the need for space maintenance to avoid problems down the road. Monitoring space maintenance needs is one of the primary roles of orthodontists. We hope to see your patients before you perform the extractions, will give you guidance on space maintenance, and will continue to monitor them at regular intervals. If you choose to do this on your own, allow me to provide you with four guidelines that will help you get better outcomes for your young patients:

- If you are extracting any primary tooth more than a year early, space maintenance is required to avoid impactions, root resorption, contraction of the arch length, and severe crowding down the road. Primary maxillary canines can be the exception as long as they are closely monitored after removal to ensure the erupting canines do not become impacted.
- If one primary canine needs extraction, they both should be removed. This allows for midline symmetry, something that can be very time-consuming to correct orthodontically down the road. After extracting bilaterally in the mandible, bilateral space maintenance is required using a lower lingual holding arch.
- The TPA is not an effective bilateral space maintainer in the maxilla, as shown in studies. When bilateral space maintenance is required, three common options are: Nance, removable retainer, or unilateral space maintenance applied to both sides.
- In severely crowded mandibles, proper management of leeway space can avoid impactions, and the need for premolar extractions down the road. Primary second molars are on average 1.7 mm wider mesio-distally than their permanent successors. If gaining 3.4 mm of space can turn an extraction arch into a non-extraction arch, simply deliver a lower lingual holding arch prior to exfoliation of the primary second molars. (see Fig 5)

If you’re ever in doubt about space maintenance, refer to an orthodontist. We apply our experience and expertise in this area to all of the pre-orthodontics patients who we see at regular growth guidance visits. In my offices, we do not even charge to monitor your patients. We feel so strongly that these visits can help save patient families time and money, as well as avoid poor outcomes, that we offer pre-treatment orthodontic monitoring as a free service to our communities with no obligation on the patient’s part to get orthodontic treatment with us later on.



Figure 5 – Patient (7yo male) with impacted #23/26. #M/R extracted, followed by space maintenance with a lower lingual holding arch (LLHA) 6 months later to preserve canine space, and another LLHA used from age 10 until age 11 to capture leeway space, effectively resolving impaction and avoiding the need for premolar extractions without Phase I orthodontics.

## Keep Retainers In Mind As You Treat Post-Orthodontic Patients

Following orthodontic treatment, we provide patients with retainers to maintain alignment. Here are some tips to help your post-orthodontic patients with retainers:

- Retainers need to be remade whenever you place a crown or large restoration. Patients often do not know to seek out the orthodontist in a timely manner after dental work and experience subsequent relapse due to ill-fitting retainers.
- Contact the orthodontist if you ever have concerns about any retainer design. There are a variety of retainer types; each have their pros and cons, and none is perfect. We are happy to plan out a new retainer strategy if needed.
- Please include the orthodontist in the decision to discontinue a fixed retainer. If patients are not flossing effectively or developing excessive calculus, we can discuss with them the pros and cons of the other options, and ensure they have an effective alternative retention plan if they opt out of the fixed retainer.

## Some Things Improve Post-Orthodontics and Some Can Get Worse

Alignment and occlusion can continue to change, both in beneficial and problematic ways, following orthodontics – even with the use of retainers. Understanding these changes can help inform conversations with your patient post-orthodontics. Following are three post-orthodontic insights:

### 1) The occlusion settles following orthodontics.

The occlusion may lack ideal interocclusal contacts immediately post-orthodontics. You might be inclined to refer the patient back to the orthodontist or to perform equilibration. With time, though, the teeth typically settle until they come into full contact with their inter-occlusal counterparts, necessitating no further treatment. If this does not occur sufficiently after six or more months, please refer back to the orthodontist to explore additional strategies, such as switching retainer type, or using limited interarch elastics.

### 2) Open bites relapse 20% of the time.

The known relapse rate for open bites is 20%, regardless of whether an open-bite patient is treated surgically, orthodontically, or in combination. Retainers prevent relapse from crowding, but do a very poor job maintaining vertical stability. The pre-orthodontic oral conditions, such as forward tongue posture, weak musculature, and oral habits, often persist, increasing the likelihood of relapse. Myofunctional therapy may help in these cases.

### 3) Wisdom teeth are not to blame for post-orthodontic relapse

Wisdom teeth can cause a host of problems, such as impactions, bone loss on the distal of the second molars, caries due to challenging toothbrush and floss access, and periodontal infections due to inflamed opercula. The recommendation for removal may be indicated in these cases, but not for the purpose of eliminating or preventing crowding. Unfortunately, the notion that wisdom teeth produce crowding of the dental arches is a persisting belief despite being discredited in numerous studies.

## The Way You Refer Patients Affects the Outcomes

We deeply appreciate your referrals and are honored you chose us to treat your patients. The way you refer patients affects patient outcomes, so here are some best practices:

### 1) Send referrals directly to the orthodontist.

Patients often forget why they are referred. They are busy and sometimes don't follow through. The orthodontist office, on the other hand, will always follow through!

### 2) Less is more when prepping patients for the initial consultation with the orthodontist.

Prepping the patient with your preliminary thoughts about fee, treatment length or treatment approach may seem helpful, but it can significantly decrease treatment acceptance when our thoughts differ. A better approach is to convey trust, communicating how you work closely with the orthodontist, you trust our expertise, and you are confident they will be well cared for.

### 3) In complex or non-run-of-the-mill cases, state why you referred the patient.

This helps us stay on the same page as providers, and dramatically increases treatment acceptance. In cases of missing teeth for example, it is helpful to know your treatment options and thoughts regarding the edentulous space(s). Do you have a desire to prep for implants, avoid implants, or to keep options open?

### 4) Timely and specific communication is imperative in interdisciplinary cases.

When the orthodontist has nearly completed the orthodontic portion of interdisciplinary treatment, we typically send the patient over for feedback. Providing us with timely information regarding any changes you would like to see, given in quantifiable metrics, such as number of millimeters or degrees, helps improve patient outcomes, and avoids treatment delays.

## Part II - Professional Feedback

I recently got off the phone with a dental colleague and good friend of mine. She had just given me two points of feedback based on her own clinical observations and patient comments. These were issues I was previously unaware of—issues that I needed to fix immediately. In spite of being somewhat uncomfortable to hear, the information was a gift. In essence, she “carefronted” me just as I continuously coach my team to do with one another. We all have blind spots, and we need strong professional relationships and constructive criticism to overcome them.

After processing the phone call, I made immediate changes to our systems and protocols so these issues will never pop up again. My friend wasn't the first person to offer this type of feedback, but these conversations are too infrequent. In the last 8 years of clinical practice I've been able to make significant improvements in our clinical protocols and administrative systems thanks to the feedback from my dental colleagues. This information is a gift that I actively seek out.

Do you openly share feedback with local orthodontists? Keep in mind that most of us want our dental colleagues to feel comfortable enough to offer constructive criticism. Most of us want you to reach out with clinical questions or concerns. Most of us will welcome suggestions about how we can communicate more effectively. After all, once you help us remove our blind spots, our patients and communities win. And if you are open to this type of information exchange, orthodontists can give you similar opportunities to improve.

In this spirit, I would like to give the gift of feedback from my orthodontic colleagues to the broader dental community with regards to professional relationships. This feedback is not my own. I sought out input from one of the largest orthodontic study clubs with over 6000 members. This feedback is not intended to create upset, but to expose blind spots, produce a greater level of understanding, improve patient outcomes, reduce friction between the dentist and the orthodontist, and build the professional trust and rapport required to mutually collaborate on treatment, and so on.

Among the orthodontists I polled, there were three major relationship killers that consistently showed up in the poll. Are you ready to lean into some discomfort? Let's begin!

### Relationship Killer #1 - Public Critique, Criticism, or Blame

When patients hear open critique, no matter how subtle, they begin to question the integrity of both professionals, goodwill and trust are lost for both, trust in the broader dental profession is diminished, interprofessional relationships become damaged, and in the wake of all this, patient outcomes become compromised. As unpleasant as it may be to talk about, this does happen. Even in the rare occasion when a professional commits a gross act of negligence, it's worth it to stay, well, professional. The grand reality is, no one wins when we cast blame or critique publicly.

As orthodontists, we should never give patients our thoughts on the best restorative procedure for their teeth whether it's before treatment or after. Even though we happen to be dental school graduates, it is not our primary focus nor our area of expertise. Dental outcomes, such as restoration shade, shape, size and aesthetics, crown margins, and implant placement, aren't always "perfect" just as orthodontic treatment plans and outcomes aren't always "perfect". What is "perfect"? It's an elusive and subjective ideal on which none of us is the ultimate authority. Furthermore, there are innumerable nuances to treatment that an outsider could never fully appreciate being so far removed from the information, and without first-hand knowledge of patient history, compliance, financial concerns, and so on.

It is understandably tempting to tell patients your thoughts on the orthodontic treatment plan, such as the decision to extract teeth or to use a certain appliance. It can be even more tempting to openly weigh in regarding imperfections in the finished case, such as occlusion, enamel abrasion, residual cement, decalcification, and periodontal outcomes. Without a doubt, there will be differences of opinion, and beyond that—mistakes do happen! These are real issues not to be swept under the rug. However, addressing them with the orthodontist directly is the best way to help them improve.

Let's use broken lingual bonded retainers as an example. If it breaks during the dental cleaning, who is to blame? Is it the orthodontist's bonding or the hygienist's hefty use of the scaler? What do we tell patients? A neutral response is best: "These sometimes break, and your orthodontist is very good at repairing them." Then, contacting the orthodontist's office directly to schedule the repair avoids any delay and risk of relapse. If you notice a pattern of breakage or have a concern, please let us know. We want your feedback!

### Relationship Killer #2 - Abuse of Professional Courtesy

A couple of years ago, I went to our local endodontist's office for a complicated post and core removal along with a root canal. The process was challenging and lengthy. After two hours, during which he went to great lengths to make me comfortable, he successfully completed my root canal. When I went up to the front to pay, I was told there would be no charge. I was flabbergasted! Two hours of a highly sought-after specialist's time, given to me at no charge? As an orthodontist, I've never referred anyone to an endodontist. How could I ever repay him? I immediately left him a Google review. Further, I tried to tell everyone in need of endodontic care that this is the guy to see.

Likewise, when I go to my dentist for regular visits, she insists on not charging me. I pleaded to have her let me pay at the beginning, but gave up after she informed me on one occasion that she had taken up boxing and would easily win this argument if I tried to escalate it. I'm a lover, not a fighter, so I continue to get dental treatment for free!

Most orthodontists likewise extend professional courtesy. It is a massive compliment and an honor when a dentist, staff, or family member chooses us for treatment.

When can this feel out of balance and hurt the relationship? Orthodontists in the group I polled described a scenario that they would consider an abuse of this courtesy—referring family and staff for discounted treatment, but seldom or never referring other patients, choosing instead to treat these in-house. There is a lot of "give" on the part of the orthodontist and "take" on the part of the dentist—a potential relationship killer!

If this happens to be one of your blind spots, we encourage you to think about its impact on your professional relationships and the patient outcomes that flow from those relationships. Furthermore, if you are motivated to have your family treated by an orthodontic specialist, it would be hard to justify not having that same motivation for the rest of your patients, who often ask the golden question, "What would you recommend if I were your family member?"

### Relationship Killer #3 - Excessive Use of Another's Professional Expertise

Lastly, I would like to address the use of one another's professional expertise. We certainly lean on your professional expertise in a variety of situations, such as input on how to best set up our pre-restorative cases for you, feedback on proper inter-radicular spacing prior to placing implants, and general feedback regarding patients' experiences and outcomes. You likewise rely on our professional expertise in many of our mutual cases. You may further choose to lean on the orthodontist's professional expertise in treatment planning the orthodontic cases within your own dental practice. This is a big ask, but if the relationship is strong, most orthodontists, including me, are more than happy to weigh in to help you on occasion. When can this be a potential relationship killer? The orthodontists I polled expressed that this becomes excessive when the requests for input are too frequent or ongoing. In such a relationship, the orthodontist may be less inclined to help with that clincheck in your difficult aligner case, or to help you get unstuck in a tricky braces case. Ongoing use of your orthodontic colleagues as unpaid consultants is frankly unprofessional and implies that it may be in the patient's best interest that a specialist is treating the case.

### Conclusion

As my good friend and dental colleague communicated her feedback to me, it was clear to me that she had my best interest at heart. The "care" in "carefront" was heard loud and clear! In turn, I told her I was committed to making any necessary changes within my power. And further, I relayed just how grateful I was for her and for our professional relationship. Such are the conversations that should occur at much greater frequencies if we are to elevate the dental profession.

When we set out to tackle sensitive information, we are often too afraid of the response, and we retreat. I support speaking heart-to-heart without fear, and, in doing so, bringing uncomfortable topics to the forefront. The AGD gave me this topic because as dentists you want to know all those things orthodontists have been afraid to tell you. Channeling the collective voice of my specialty I chose to tackle some difficult topics, even at the risk of rocking the boat a little.

I love the dental profession, the amazing dentists I get to work with each day, and the massive amount of good we do in the world on the daily. It is such a privilege and an honor to labor alongside all of you. And it has been an honor to engage you in these challenging topics. In the end, I saw this as an opportunity to promote a stronger connection between orthodontists and dentists, and to promote greater outcomes for the patients we serve. ♦

# Oral Surgeons, General Dentists, and Surgical Extractions

## REVIEW OF SURGICAL EXTRACTION GUIDELINES

### BY DOCTORS:



#### KARL KOERNER

Until recently, Dr. Koerner was an Associate Professor in Oral Surgery at Roseman University of Health Sciences, College of Dental Medicine in Utah. Currently, he is an adjunct professor there. He has presented hundreds of didactic and participation oral surgery courses in the U.S. and around the world — speaking about twice a month at dental meetings both large and small.



#### ANDREW DROLLINGER

Recently relocated to Houston, TX after having been an Assistant Professor in Oral Surgery at Roseman College of Dental Medicine in Utah and former Head of their AEGD Program. He has also been a past director of Roseman's Department of Orofacial Pain and Dysfunction. As full-time faculty, he maintained a private practice doing primarily oral surgery.

### PREFACE

Why was this article written, what is its purpose, and what are its goals?

This article was written to describe the present state-of-affairs regarding oral surgery (specifically surgical extractions) in general dental practice. Its purpose is to 1) help foster a mutually beneficial relationship between oral and maxillofacial surgeons and generalists for the benefit of patients, 2) elucidate some aspects of surgery that will lead to better case selection by generalists, and 3) provide guidelines for general dentists to make surgical treatment easier and faster. The goal is to have general dentists perform surgical extractions and other minor dentoalveolar surgery at the same level of care and with the same standards as oral surgeons.

### INTRODUCTION

Most recent dental graduates would say their oral surgery knowledge is inadequate to do other than the most simple procedures. However, many oral and maxillofacial surgeons would prefer that general dentists did routine surgery procedures (like surgical extractions) because it enables the surgeons to perform more of the higher production cases like dental implant surgery; bone regeneration procedures; removal of third molar impactions; orthognathic surgery; maxillofacial trauma; TMJ surgery; and facial cosmetic surgery.

The majority of general dentists would like to provide a broader range of oral surgery services in accordance with patient needs. Certainly, with a declining economy, higher unemployment, fewer people with dental insurance, rising inflation, supply chain problems, and other factors there is a more acute need for extractions including emergency treatment. Especially in these situations, it helps if more generalists are willing and able to do surgery to keep up with demand and avoid concerns, such as long waiting times for an appointment, lack of Medicaid acceptance, often longer distances to travel, and higher fees.

Facilities most hard-hit by this dilemma are public health dental clinics. They are the first line of support for low-income communities. Budgets are minimal with some dental clinics heavily dependent on volunteer dentists. If these volunteer dentists are not well trained, it could sometimes take longer to remove teeth; lead to more broken roots; increased patient pain; more infections, and more extractions being referred out-of-network -- further depleting meager financial resources.

### DISCUSSION

Is there middle ground where surgeons utilizing their specialty training, could do procedures for which they are most qualified and at the fees

they want to charge, while at the same time encouraging surgically inclined and competent general dentists to perform surgeries at an acceptable level of expertise? (Fig. 1, a and b) Yes. In fact, there are many examples in the profession of mutual respect and cooperation between surgeons and GPs. In these situations, the surgeon will often even provide advice and/or training to the GP for surgical extractions and related procedures in exchange for the GP referring out more sophisticated surgery.



Figure 1a and b. Maxillary and mandibular first molars both indicated for extraction and within the capability of most general dentists to remove, even if sectioning and withdrawal of individual roots is required.

On the bright side for general dentists, there are many post-doctoral programs that are successfully preparing residents to provide a higher level of surgical services. These are GPRs (General Practice Residencies), AEGDs (Advanced Education in General Dentistry programs), and one-year pre-residency oral surgery internships – many with dedicated surgical faculty. They teach such topics as: difficult surgical extractions; bone smoothing (alveoloplasty and smaller exostoses); socket grafts and ridge augmentations; easier third molar cases such as those causing pericoronitis; and sometimes implants and IV sedation. It is possible to find helpful oral surgery courses at state, regional, or national dental meetings, but their effectiveness is largely dependent on their teaching modalities and length of time. A course that includes a robust hands-on component will be significantly more effective at teaching core surgical principles than a course that is lecture only.

Dentists who graduated from school knowing how to quickly, efficiently, and safely perform surgical extractions and other related surgical procedures are usually those who knew early-on that they wanted surgery training from their dental education. They aspired to be an oral surgeon, or wanted to learn implants, or foresaw the downtrend of OS opportunities in school. However, they persevered in order to eventually have a more well-rounded general practice. They were the ones who made friends with oral surgery faculty or spent time ‘hanging out’ in the surgery department waiting for unexpected opportunities. They signed up for ‘outreach’ public health clinics, externships, or sought out local dentists willing to ‘mentor’ them. Without that drive for surgical expertise, they very well may not have achieved their desired level. Some even started preparing early for AAOMS’ CBSE (Comprehensive Basic Science Exam).

A lot of general dentists feel that if they just remove enough teeth, they will become proficient. The likely problem with general dentists removing scores of teeth without someone to mentor them is that they may get faster without getting better. They may be

removing far more bone than necessary; using more force than required causing ridge disfigurement; be accepting of maxillary tuberosity fractures that are preventable; and generally having more complications than normal. In these situations, when they do full mouth or full-arch extraction cases, subsequent prostheses are often 1) less likely to fit and function properly, or 2) more expensive to fabricate because they need bone grafting and implants that would have been less needful with proper care.

### CASE SELECTION FOR THE GENERAL DENTIST

Surgical cases selected and treated by general dentists should be matched to the dentist’s ability and comfort level. It’s like skiing. Green circle, blue square, black diamond, and double black diamond (Fig. 2).

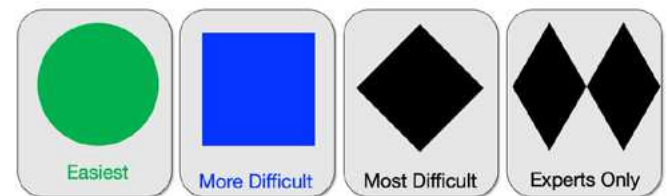


Figure 2. Markers for varying degrees of difficulty on ski slopes.

The first two levels of skiing difficulty (green and blue) would be equivalent to degrees of surgical difficulty appropriate for most general dentists – “easiest to more difficult” but not the most difficult. When a general dentist starts treatment of a case, there is the expectation that he/she will be able to complete it. How does the general dentist begin to differentiate how difficult a case will be, relative to his/her level of knowledge and experience? Even this diagnostic exercise takes training. Black diamond extractions would likely be for specialists.

### GUIDELINES FOR SURGERY

The general dentist should refer cases that are beyond his/her ability and comfort level. Below are some suggestions to be considered in making the decision of whether or not to treat and recommendations to be followed once treatment has begun. This material is not all-inclusive but reviews areas that the authors feel are most needful.

One of the first considerations is not even what the tooth looks like in the radiograph but rather, the management of the patient’s physical and emotional well-being:

#### 1) Is the patient healthy enough to tolerate the surgery?

- a. Current health history reviewed. Patient meds evaluated (including illicit and over-the-counter drugs).
- b. ASA status
  - i. For most general dentists, the patient would be ASA I or II.
  - ii. Class III, that may represent a more advanced category than most generalists would want to treat, includes “patients with severe systemic disease and substantive functional limitations OR one or more moderate to severe diseases”. These patients are usually better treated by a specialist.

- iii. What are baseline and pre-surgical vital signs, what is the blood glucose level today for your diabetic patient? What are the limits over which you would not treat? Some dental schools draw the line at: BP 160/100, blood glucose over 300. But there are other factors to consider along with that
- iv. Management of patients on anticoagulants. This usually means less surgery [fewer extractions] than an OMS would undertake. Reactions with Coumadin and some antibiotics could spike the INR to 5+.
- v. Potential drug interactions or reactions, including to local anesthetics you administer.
- c. Advanced patient age with accompanying dense bone.
- d. Metabolic equivalent score (helps determine a more elderly patient's stamina for a procedure).
- e. Need for stress reduction measures in patients with anxiety or elderly patients with cardiac conditions.
- f. Seriousness of existing infection (localized vs. spreading, ability to achieve adequate numbness).
- g. Are you prepared for a possible medical emergency? Able to deliver positive pressure oxygen? Do you have a GP emergency kit with non-expired meds? Have you and your staff been participating in training to manage emergencies, and are you BLS (or ACLS) certified?
- h. Is sedation required?

## 2) How difficult does treatment appear, particularly extractions?

How long do you anticipate it will take to complete it? Have you scheduled adequate time? Taking too much time to do the surgery is a "surgical complication".

- a. Endodontically treated? PDL visible or not?
- b. Nature of roots? Divergent, dilacerated, hypercementotic, thin vs. broad, long vs. short, overlapping sinus or mandibular canal, root tight against root of an adjacent tooth? Root(s) decayed or fractured? Sub-crestal in bone?
- c. Sectioning required? Your ability to remove root tips?
  - If not removed, retained root tips will compromise future implant treatment. Don't leave them. Learn how to remove them.
- d. Adequate mouth opening to treat? Over 20 mm.

## 3) What is the level of your surgical ability?

- a. Use of scalpel/sharp periosteal elevator for fast flaps, knowing how big a flap for what you are doing (adequate access/visibility), headlight, never excessive force...
  - i. Learn what constitutes excessive force – force that would fracture bone or sublaxate the mandible. Whether it is excessive may depend on the nature of bone where the force is being applied.

- b. Simple sutures: Complete them in 30 seconds to 1 minute. Wrap excess in your hand (faster and doesn't get contaminated). Short tails (2 cm).
  - i. Suture material shouldn't touch non-sterile objects (hair, clothing, chair, non-sterile bib, etc.)
  - ii. Know how to use of "skinny bur/Luxator" (or equivalent system) into the PDL, primarily on mesial and distal (Fig 2). If more apically down the root, could be buccal/lingual too. A skinny bur is a 700 or 701 fissure bur.
  - iii. Avoid the sinus, mental foramen, facial artery, lingual nerve and other important anatomic structures.

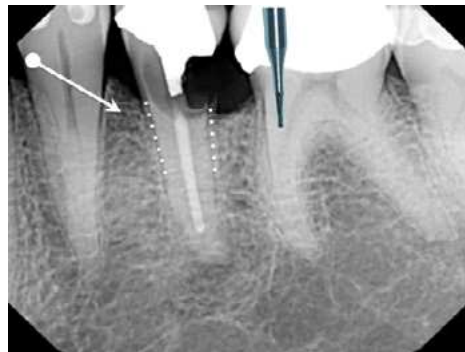


Figure 3. Lower premolar indicated for removal but elevator and forceps were ineffective. The crown fractured off. First, a 3 mm straight Luxator was inserted vertically 4 mm deep into the PDL and rotated with pressure applied to the root with the instrument's lateral edges. As that did not work, the skinny bur (701 shown) was used to create a narrow trough about half-way down the root into the mesial and distal PDL spaces followed again by using the Luxator in a similar manner. Depth could be up to  $\frac{3}{4}$  the root length. Bur removes half root, half bone.

- c. Manage small sinus perforations – it is common to use a bone graft (like an OsteoGen Plug) with an X suture. Larger opening may need an OMS doing buccal advancement or buccal fat pad graft.
- d. Know that it's acceptable to remove buccal bone with erupted third molars since implants are rarely placed there. This will eliminate nearly all tuberosity fractures when removing erupted third molars.
- e. Know how to do an alveoplasty and remove smaller exostoses.
- f. Be able to avoid or manage common complications should they occur, such as damage to an adjacent tooth, bleeding from soft or hard tissue, nerve injury, pain and swelling, root tips beyond the lingual plate (into the floor of the mouth), dry sockets.

## 4) Instruments and supplies.

- a. Always maintain a sterile field for sterile instruments. Use a sterile patient towel (bib) for oral surgery. (Default could be an 18"X26" towel in sterile packaging)
- b. Always use a handpiece that does not blow air into the surgical field.

- i. As a "surgical" highspeed. Usually has a 45 degree angle near the turbine. Often this handpiece cannot get the bur deep enough into the socket to adequately remove root tips. Since one is not drilling enamel there, the operator could use a sterile slow-speed straight with a straight handpiece bur.
  - ii. As a surgical straight handpiece as used by most oral and maxillofacial surgeons. (Could have a 2-1 increaser at attachment turning the bur at 60-80,000+ rpm.)
  - iii. A 557 bur is generally considered too small and weak, making section cuts too narrow and slowing down surgery.
- c. As any extraction has the potential to become "surgical", always be ready with instruments for that purpose. A telltale sign of an office weak and inadequate in surgery is "the drawer" that has all the surgical instruments bagged individually. Have a least two "sets" of the instruments for surgical extractions to do possible back-to-back cases quickly and efficiently (Fig. 4). Other individual instruments can be requested as needed during the procedure.



Figure 4. "Surgical Extraction" instruments. Upper and lower universal forceps, needle holder, surgical scissor, 3 mm straight Luxator, small elevator (as 301), medium bite block, 4 mm wide surgical spoon curette, scalpel handle (flat or round), periosteal elevator (as Molt #9).

- d. A weak link in asepsis is the suction hose. Use barriers or a 4' long autoclaved rubber hose with adapters to the GP suction system.

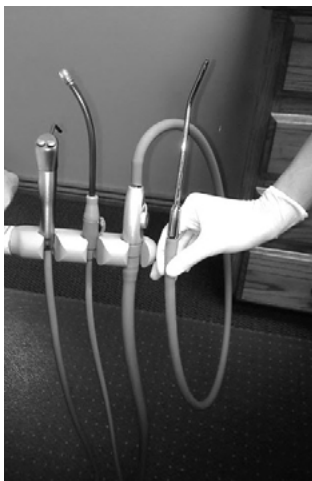


Figure 5. The sterilizable hose and suction tip provide an extension of sterility beyond just the metal suction tip alone.

- e. Never drop a non-sterile 15c blade pack, suture pack, non-sterile bone graft vial or anything else on a sterile field.
- f. Always use a throat pack when needed.
- g. Use "Dental Drugs" or other app's to calculate maximums on local anesthetic  
Sterile saline irrigation is the ADA and CDC standard of care for oral surgery. Try to change from the restorative standard of 500cfu/ml to the surgical standard. Some states have or are looking at mandating the use of sterile saline for all dental surgery.
- h. If a dentist anesthetizes all four quadrants for oral surgery, particularly in the posterior, 2X2's should not be used for hemostasis. Rather 4X4's should be elongated to 4X8 and then rolled lengthwise. This provides gauze pressure on the posterior wounds but allows a "tail" protruding from the mouth for safety. This practice saves lives.



Figure 6. Whether the patient is sedated or not, this method of gauze management helps prevent smaller saturated gauze pads from entering the airway.

How do general dentists become more valuable in a practice, be it their own, partnership or in the employ of others? They become better at surgical extractions. They make a financial investment in themselves to be able to do more surgery. Patients need it and appreciate it, especially when times are bad -- when they can't afford expensive specialty procedures to save teeth. General dentists need to seek the training that makes procedures smoother, faster, more pain-free, and confident - with extractions and other surgical procedures.

## CONCLUSION:

If a general dentist feels that the surgical principles and procedures taught in dental school were not adequate to provide routine dentoalveolar surgery treatment to patients in their practice or if a dental graduate did not have the opportunity to attend a formal post-doctoral program, there are still other opportunities for learning. They are available through the Academy of General Dentistry and other independent teaching organizations. If a general dentist wants to include routine surgery (including surgical extractions) in his/her practice but is discouraged at where they are, then look for courses with didactic teaching, life-like models, pigs jaws, videos, and patient treatment components to take you to the next level. Career-long learning is a continual process. Along the way, try to maintain a cordial and synergistic relationship with your oral and maxillofacial surgeon. ♦

# Set Me Up For Success!

## WHAT THE SPECIALIST WANTS YOU TO KNOW BUT IS AFRAID TO TELL YOU

BY DR. ASHLEY S. TERCERO



Ashley grew up in the Pacific Northwest. She earned a Bachelor of Science degree at UCLA and was happy to return home and earn her Doctor of Dental Surgery degree at the University of Washington. She was drawn to pediatric dentistry, public health, and working in an underserved area. She completed her pediatric dental residency at an off-site program in Yakima, Washington, and earned her certificate in pediatric dentistry from the University of Washington. She enjoyed her outstanding residency program and loved serving the high need community. She felt it was important to work where her skills were needed most and was happy to open the only private pediatric practice at the time in Yakima, WA. After 14 years of private practice as a sole provider, she continues to love serving her community and aiding in oral health awareness, education, and management of severe early childhood caries.

She is thankful for the privilege of serving a wonderful community and the opportunity to positively impact the health of her pediatric patients. When not at work, she enjoys spending time with her husband and three children. She enjoys the great outdoors and being active whenever possible.

My success as a pediatric dentist, will pay forward to your success as a general dentist. Taking fear out of dentistry for the child patient, allows for a functional and compliant adult patient. There are many components of pediatric dental success. Behavior management is paramount, for example. Equally important are the expectations of the parent and child-patient. Realistic expectations provide better outcomes. Clarifying such expectations begins with you, the referring dentist. This is how you can contribute to my success, and thus, your success.

Let me first address the ultimate question of “when to refer”. If the child is young, anxious, medically complex, or has multiple quadrants of decay, please refer! The specialty of pediatric dentistry is geared for these patients. If you struggle to use the explorer during an exam, or the child guards their mouth with their hands and barely opens, don’t attempt restore; refer! If the child is like a jumping bean in your chair, refer! If the child is wonderfully cooperative but requires extensive restorative work, refer!

When you do refer, be sure to inform the parent of your reasoning so they understand you are keeping the best interest of their child in mind. Not too long ago, I had a parent who, at our initial consultation appointment, directed me to “complete all the work today”. Her son, a 3-year-old, needed three quadrants of stainless-steel crowns, pulpotomies, and one extraction. I politely explained that I would not proceed with treatment the day of the consult, that the appointment was intended for planning and preparation. The mother insisted I “at least get something done,” and continued, “I prepped my son for this, he knows he is getting a shot, and he is ready”. I then had to play hard ball. I walked her over to the x-ray room so she could watch as my dental assistant attempted radiographs (in the most sweet, patient, and reassuring way). We were successful in obtaining semi-diagnostic images, but all while her 3-year-old son was pre-cooperative, squirmy, and crying. I then calmly, and politely said, “if your child cannot tolerate 2 seconds of discomfort while taking an x-ray, it is unreasonable to expect him to tolerate 30 minutes of discomfort while attempting restorative work.” Mother embarrassingly came to the realization that her expectations were outlandish. Informing the parent of the situation, or reason for the referral, quickly gives the parent realistic awareness of the situation.

I also appreciate when the referring dentist gives me a heads-up and includes a brief reason for their referral. For example, stating the child has SECC (severe early childhood caries) which tells me the workload is high and dental rehabilitation under general anesthesia is likely. Or, stating the child is anxious, which informs me that my approach needs to be calm and subtle to win over their cooperation. High anxiety children need to know I am here to help them. If you note the child has fear of needles, the first thing I explain to the patient, after introducing myself, is there will be no treatment during the consult, no pain, and no needles. Telling a child this directly, and addressing their fear head-on, breaks the ice, and instantly addresses the one thing on their mind and will take their anxiety down to a level where they can actually listen, contribute, and get on board with the restorative plan.

In my experience, there are four components of a successful pediatric dental appointment: 1) Completing the restorative treatment safely and with quality

(believe me, this can be a feat sometimes), 2) The patient leaves happy, 3) The parent leaves happy, 4) The patient becomes more confident and thus cooperative in future appointments. While it may take a few (or several) visits to achieve the 4th component, my staff and I strive for it each and every time. Pediatric dentists are constantly balancing the scales between treating the disease of caries and managing the emotional health of the child. I practice in a high need community where I manage severe early childhood caries on a daily basis. My practice philosophies are reflective of the high-risk community I treat. Knowing your local pediatric dentists and their treatment philosophies will help you set realistic expectations.

Though we have individual practice philosophies, all pediatric dentists share in their ability to adapt. Our treatment style adjusts to the individual needs of the patient. For example, the pharmacological behavior aid selected by the parent, can determine how aggressive or conservative I practice. If a child is receiving restorative treatment with the aid of nitrous oxide, I will proceed conservatively, treating only the cavities of immediate concern. If I can monitor it, I will. On the contrary, if a child is under general anesthesia, I proceed more aggressively, treating all incipient caries lesions and placing more stainless-steel crowns in accordance with AAPD guidelines. **If I am treating a child under general anesthesia, I want to do everything in my power to prevent them from needing general anesthesia again.** Knowing this will help you understand the different treatments you see from the pediatric dentist.

It is also critical to understand there could be “more than what meets the eye”. Children are not small adults, and primary teeth are not small permanent teeth. Severe early childhood caries is a disease that acts differently than the disease of caries affecting permanent teeth. **Primary teeth have thinner enamel than permanent teeth.** Once a cavity “ignites” in the young pediatric mouth, it tends to spread like wildfire. It is not uncommon to diagnose multiple cavities in one checkup. Radiographs are critical to determine the final cavity count. If you are not able to obtain radiographs, don’t be surprised if the pediatric dentist finds more than what you expected. **This is important information to share with the parent when making the referral.**

No matter how we choose to proceed with treatment, please know, pediatric dentists are not magicians. We cannot perfectly restore teeth on a non-cooperative child. **If the parent refuses the use sedation or general anesthesia, and we struggle through using nitrous oxide, the restorations will be reflective of those struggles.** Please understand the quality of dentistry provided is directly related to the cooperation of the child, and the willingness of the parent to follow recommendations. Kids can twist and contort their bodies in ways adults cannot replicate. I don’t know how, but their little feet can extend enough to kick me in the head, all while trying to make their composite “pretty”. I call this rodeo dentistry. I’ve been peed on, pooped on, and thrown up on. This is the sacrifice pediatric dentists make in support of our referring dentists. Also note, in these events, the patient may return less cooperative and more anxious. This is not how I like to return a patient to you, but sometimes I have to be the bad guy so that you can be the good guy. Pediatric dentists make the best of what we have to work with and accept that perfection is achievable only in the best of circumstances.

Though I would love to focus my efforts on the patient in front of me, pediatric dentistry is a two-for-one deal. I not only need to manage the behaviors and expectations of my pediatric patients, but their

parent as well. If the parent is on board, the child more willingly follows and the outcome is more ideal. The first visit with me is a simple, no stress consultation. I observe the parent and child dynamics during this visit to determine the best plan of action. Treatment is rarely done the same day and should not be promised to the parent. This lessens the pressure and anxiety from the parent and subsequently reduces the anxiety of the child.

As mentioned earlier in this article, it is also helpful if the parent understands why their child is being referred. Often times they do not understand why you, their family dentist, are not completing the work. Perhaps the child is not cooperative and needs pharmacological management. Perhaps they are too young, or the restorative work is not within your wheelhouse. Maybe you want to keep your office as the “happy place”. No matter why, please communicate this with the parent. Explaining your reasons for referring your patient helps promote what I do and aids in the parent’s confidence in the services I provide.

Parents also need to know the value in restoring primary teeth. Often, they see it as unnecessary or unworthy of the expense. Nitrous oxide, oral sedation, and general anesthesia (thank goodness for those dental anesthesiologists!) are costly and insurance coverage is often poor. I can explain the importance of restoring primary teeth in more detail with the parent, if needed, but you have earned their trust. My words will sit better with them if they heard it from you first.

Last, but most important, we should discuss how to set the child patient up for success. Please do not attempt treatment only to allow the child to experience a failure. Keep your office the “happy place” where the fun exams/cleanings take place. Let my office be the place where the tough stuff gets done. This separation for kids can be helpful. Also, it is easier for me to keep a happy patient happy, versus trying to turn a fearful/untrusting patient into a happy one. **Behavior and cooperation can decline with each restorative experience. Of course, there are patients who seem capable and mid treatment surprise you with their poor cooperation. It never hurts to try, as long as you jump off the struggle bus before the emotional damage is done.**

Perhaps most important, address your child-patient directly and be sure to put in a good word for me. I am extremely fortunate to work in a community of highly supportive general practitioners. The general dentists know me well, trust my skill set, and boast me up. You don’t need to explain the details, just offer a simple, positive statement so the child looks forward to meeting me. If the child is difficult for you, they can be cooperative for me if positive expectations have been provided. Power of suggestion! Help them know I am a friend, not a foe. Setting encouraging expectations from the start helps in my ability to create a more positive experience for your patient.

I am fortunate that the referring dentists I work with have all taken the time to get to know me and appreciate, as I do, our collaborative efforts in offering exceptional dental care to our patients. It is important to start kids with a positive dental experience to ensure continued optimal dental care throughout their adult lives. What goes around comes around. Setting me up for success aids in my ability to pay it forward and return a cooperative patient to you. ♦

# The Importance of Accurate Periodontal Diagnosis

WHAT THE PERIODONTIST WANTS YOU TO KNOW  
BUT IS AFRAID TO TELL YOU

BY DR. DWIGHT L. JOHNSON



Dr. Johnson grew up in Clearfield, UT as the oldest of 6 children and attended Brigham Young University (BYU) in Provo, UT where he graduated in 1994 with dual degrees, a B.S. in Chemical Engineering and a B.A. in Portuguese. He is married to the former Melanie G. Wood of Price, UT and together they have 7 wonderful children. Dr. Johnson graduated from Southern Illinois University School of Dental Medicine in 1999 and joined the US Air Force, where he completed a 1-year Advanced Education in General Dentistry (AEGD) in 2000 and served as a general dentist in the Air Force prior to beginning his Periodontal residency in a joint program with the Air Force and the University of Texas Health Science Center in San Antonio. He graduated in 2005 with his Masters in Oral Biology and a certificate in Periodontics from Wilford Hall Medical Center and shortly thereafter became a diplomate of the American Board of Periodontology.

He recently completed an exceptional career in the Air Force where he received numerous awards and recognition, winning the highly esteemed Orban and Prichard awards for Periodontal research in 2005, and teaching on the Faculty of the Air Force Post-Graduate Dental School as a Periodontal and AEGD-I instructor. He currently is in private practice, and owner of Walla Walla Periodontics & Implants, which he started in May 2022 in Walla Walla, WA.

It is an honor and privilege to have been asked to write this article for my fellow colleagues in the Academy of General Dentistry. Before getting to the topic at hand, I think it is important for you to know a little of my background and where I am coming from. I graduated dental school in 1999 and did a 1-year AEGD residency with the US Air Force. I then spent two years as a general dentist and was actually a member of the esteemed AGD for those two years prior to starting my perio residency, which I also did through the Air Force. Now, I am about to retire from the Air Force and start a periodontal and implant practice in Walla Walla, WA. As part of my career in the Air Force I also had the opportunity to teach and train general dentists as a perio instructor in several AEGD residencies as well as teach as a faculty member in the perio residency at the Air Force Post-Graduate dental school. So, in a sense, teaching is very much in my blood, and I enjoy it immensely. Even though I have enjoyed a 20-year career as a specialist in the Air Force, I also happened to have a three-year stint in private practice, and so I can honestly say that I've seen the general dentist/specialist relationship from both sides of the fence. One may think that there would be significant differences between what I experienced in the Air Force and private practice and there is a lot of truth to that; however, I found that deep down, what I wished my general dentist colleagues knew and understood was the same. Most of it boils down to a few simple but often overlooked or ignored biologic principles and concepts. I think that truly understanding these principles and concepts would not only strengthen the general dentist/specialist relationship, but would also better serve our patient's best interests, which is hopefully the end goal and desire for each of us.

Since I am a Board-Certified Periodontist, I will of course approach this from a periodontal perspective. There could be a long list of a lot of little things that your periodontist could vent about, wishing that their referring dentists would do better or understand but I would only like to focus on about 3 things, which if truly understood would make the relationship between the periodontist and general practitioner run much smoother.

## THOSE 3 ITEMS ARE:

1. The importance of using clinical attachment levels/loss (CAL) verses probing depths to correctly diagnose the severity of Periodontal disease (Stages I-IV) or pseudo pocketing.
2. What pocket depths can or cannot be adequately maintained?
3. Why/why not, the patient is a candidate for implants from a periodontal perspective?

Let me begin with the first item. This has been my #1 challenge and frustration whether in the military or private practice. I've seen it with general dentists and hygienists alike. Even though most of us now use some form of electronic charting, I find repeatedly, that it is not used correctly in order to accurately diagnose, especially when it comes to periodontitis. Routinely pocket depths (PD's) are the only thing charted on either paper or electronic forms. There is a myriad of problems that can occur when only PD's are evaluated, the worst of which is the ongoing progression of active periodontitis even though the PD's remain the same year after year. How does this occur? It is because the patient is continuing to lose bone and the whole attachment apparatus around the tooth is shifting apically. The only way to accurately diagnose whether or not a patient has periodontitis is to evaluate the CAL. How is that done? The recession levels, or as most electronic charting programs refer to it, the gingival margin (GM) levels, also need to be charted on the three facial and lingual areas of each tooth because if this is not done the default CAL, which is PD + GM is skewed. Let me illustrate using tooth #2 as an example:

Figure 1.

PD	5	3	4
GM			
CAL	5	3	4
PD	4	3	3
GM			
CAL	4	3	3

Figure 2.

PD	5	3	4
GM	-4	-3	-4
CAL	1	0	0
PD	4	3	3
GM	-4	-3	3
CAL	0	0	0

In figure 1 where PD only is charted, the PD ends up being the CAL by default, which is not the case at all. In figure 2 you can see that the GM, or recession levels are all negative which is the case in most dentitions. The negative # means that the gingival margin is coronal to the CEJ (Yes, this occurs with inflammation, but also in health). Most teeth routinely have -1 to -3mm GM levels. It is important to understand this because CAL and NOT PD's is the "Gold Standard" for diagnosing periodontitis. CAL #'s of 0 or 1 are the norm and mean that the patient has no clinical attachment loss. The diagnostic criteria given by the Academy of Periodontology for the different stages of periodontitis is:

- ➔ Stage I, CAL of 1-2mm
- ➔ Stage II, CAL of 3-4mm
- ➔ Stage III/IV, CAL of ≥ 5mm

In reality, most periodontists that I know shift this scale slightly to the right in the following manner to account for the human error in measuring both the PD and the GM levels.

- ➔ Stage I, CAL of 2-3mm
- ➔ Stage II, CAL of 4-6mm
- ➔ Stage III/IV, CAL of ≥ 7mm

This is one of the most important concepts I think practitioners, including hygienists don't understand. Another important and related principal linked to this concept is that of radiographic bone levels. The AAP incorporates this diagnostic criterion in diagnosing periodontitis but only as a secondary measure when CAL cannot be calculated. I mention this because too many times I have been sent referrals for periodontitis (deep pockets) when in reality, the patient doesn't have periodontitis at all but pseudopocketing. So, what constitutes normal radiographic bone levels? Normal radiographic bone levels are 2mm apical to the CEJ.

Going back to figure 2 previously: If I had a PD = 6mm and GM = -5mm, then my CAL = 1mm which is normal. I should be able to confirm this radiographically. If my bone levels are within 2mm from the CEJ, then my diagnosis would be a pseudopocket. On the other hand, if I had a PD = 6mm and GM = -3mm my CAL would be 3mm. Radiographically I should see slight bone loss, more than 2mm away from the CEJ and thus a diagnosis of Stage I periodontitis. My rule of thumb when seeing patients is to first look at the radiographs before even seeing the patient in the chair and come up with a "radiographic diagnosis" of what I would expect to find clinically. I then do my clinical exam measuring PD's and GM's in order to see the CAL's and then compare that to my radiographic findings. The vast majority of the time my clinical findings confirm what I see radiographically. Does that mean the deep pseudopockets shouldn't be a worry? Not at all. The patient just has to be informed of the correct diagnosis and of the challenges associated with maintaining pseudopockets. Many times, I offer a distal wedge procedure to treat the pseudopocket but let the patient decide if that is the course they want to follow or to potentially come in more frequently for maintenance visits to aid them in caring for the deeper pseudopocket. This leads me to item #2, what pocket depths can or cannot be adequately maintained?

I will respond to this by sharing straight up what the literature states and what I share with every one of my patients and hygienists. This applies not only to what pocket depths can adequately be maintained but also to what pocket depths can adequately be cleaned with scaling and root planning; and that magic number happens to be 4mm. I don't like 4mm pockets in my patients but we as dental professionals and hygienists can effectively clean to a depth of 4mm but as we go beyond that, the ability to clean and maintain those pockets drops exponentially. It is just basically hit or miss on what you or the hygienist might be able to get, especially when it comes to multi-rooted teeth. That being said, it is easier to reach, clean, and maintain a pseudopocket versus a true periodontally involved pocket for the mere fact that the pseudopocket is coronal to the CEJ with no attachment to enamel whereas the true periodontally involved pocket is apical to the CEJ and still has vestiges of attachment trying resist the inflammatory process and accompanying tissue breakdown, not to mention the heme involved due to the inflammation. Because of the fact that 4mm is the magic depth at which a pocket can be adequately cleaned and maintained, it logically follows, or should follow, that shallow pockets (≤ 4mm) should be the goal for the optimum periodontal health for each of our patients. So how exactly can this be achieved in practice?

It starts with what we learned in dental school, thorough scaling and root planing. I educate my patients from the get-go that if after the scaling and root planing (the small guns), I find pockets  $\geq 5\text{mm}$ , then the only way to get the periodontitis adequately under control is to pull out the big guns, meaning, either flap and osseous surgery, guided tissue regeneration, or a combination of both in order to achieve a reduced but stable periodontium that is maintainable long-term.

This term, a “reduced but stable periodontium” is another key phrase we each should be very familiar with, especially when it comes to implant therapy and treatment options. It is intimately connected with and brings me to the third and final key concept; when should implant therapy be considered or taken off the table? Too many times in my career I have had implants referred to me for the treatment of peri-implantitis, only to find that the patient not only has peri-implantitis but rampant and significant periodontitis or even several localized areas of Stage I periodontitis. The implant should not even have been placed because the periodontal status of the patient was a far cry from either healthy or being reduced but stable. It is interesting to note that once again that magic 4mm pocket depth number shows up in the literature in conjunction with implant therapy. The studies show that when implants are placed in a dentition where PD's  $\geq 5\text{mm}$  exist, they are significantly more likely to develop peri-implantitis and fail. Once again, it reinforces the point of having either a healthy or reduced but stable periodontium of  $\leq 4\text{mm}$  prior to placing dental implants. I've found that when a patient is referred to me for an implant and then find that he or she also has untreated periodontitis of any stage, and that they aren't a candidate for implant therapy until the disease has been treated and under control, that their motivation to take care of their existing and remaining dentition increases dramatically. It is a motivational tool for sure, but more importantly, it is a disservice to the patient to place an implant in a diseased dentition. As I tell these patients and all my implant patients, it is much easier to take out and treat a diseased tooth than a diseased implant and usually much less expensive as well.

Because of this, I think many referral relationships are strained when general dentists refer to a specialist for an implant, only to have the patient “disappear” for months on end because the periodontist is trying to accomplish the necessary periodontal therapy in order to achieve the reduced but stable state in which the implant therapy you sent the patient for in the first place, can be safely implemented. This is where good, honest communication with each other is a real key. One last important point associated with this topic is that implants, just like teeth need to be maintained. Too many patients think that now they have a titanium screw for a tooth that all their worries are over because of course titanium teeth cannot get “cavities”. That is absolutely the truth, but they can still get peri-implant mucositis and/or peri-implantitis and lose the tooth and implant that way.

In summary, I have attempted to share three items, from my perspective, about what your periodontal specialist would like you to know but is afraid to tell you.

## THEY ARE:

1

The importance of using clinical attachment levels/loss (CAL) versus probing depths to correctly diagnose the severity of Periodontal disease (Stages I-IV) or pseudo pocketing.

2

What pocket depths can or cannot be adequately maintained? and

3

Why/why not, the patient is a candidate for implants from a periodontal perspective?

The specialist you work with may wholeheartedly agree with this, or, he/she may have different things they wish you would know or understand. Regardless, I hope that what I've shared in writing this article has had some benefit and will help you better understand your periodontist's perspective, or at least, spark a conversation with him or her about the topics I've discussed today. Communication is the key and when we can do this effectively it will not only benefit the general dentist/specialist relationship, but will ultimately be the best for our patients, whom we are both trying to serve and provide the best possible care. ♦



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# The Mindset of a Prosthodontist

## FACTORS TO CONSIDER IN TREATMENT PLANNING: INCISAL EDGE, OVERBITE, OVERJET, AND MORE

BY DR. JAE SEON KIM



Dr. Jae Seon Kim is a board-certified prosthodontist practicing in Seattle, Washington.

Dr. Kim believes in lifelong learning and regards lecturing as a tool to communicate with other dentists and lab technicians. Through these efforts, he hopes that all participants can take another step towards mastering their craft.

Dr. Kim received his MSD degree and a certificate in Prosthodontics from the University of Washington and is an affiliate assistant professor in the Restorative Department at the University of Washington.

How many prosthodontists does it take to change a light bulb? It only takes one, but it will require 3 appointments. If you think Prosthodontists are overthinkers, you might be correct. If you say Prosthodontists like to overanalyze, that might be an accurate statement too. You may find these group of obsessive nerds a little annoying but making friends with a Prosthodontist may prove to be actually useful. Let me try to explain the mindset of a Prosthodontist (at least my thinking process) so you don't have to guess what Prosthodontists aren't telling you.

Before I bore you with the technical aspects of treatment planning, let me briefly take you back to the summer of 2008 when I first started my Prosthodontic residency at University of Washington. 3 years after I graduate from dental school, I decided to apply for an advanced graduate program as I became increasingly frustrated at my ignorance in treatment planning. I was feeling extremely anxious, and excited at the prospect of starting my residency as the UW Prosthodontic program had its reputations for being a prestigious, yet difficult program. I heard rumors about residents having melt downs after their lab work went up in flames or going to the ER thinking they're having a heart attack when in reality it was just acid-reflux from excessive coffee. But I held my breath and jumped in head-first and embarked on a journey to find the answers to my curiosity in treatment planning.

During the first week of residency, I walked into the Pros lab and in the corner, one resident with a serious face was going through some slides and my classmate was watching with admiration. I walked up to them and watched as the senior flipped through his presentation slides, showing off intricate photos of his latest lab work. The senior bluntly asked, 'Are you ready to present?' I told him my presentation was still 5 months away. He replied, 'Do you think that's enough time?'

Ever since that encounter in the lab, I quickly realized how important presentations were in the life of a resident. I never did like public speaking, and the prospect of having a stage light focused on my pale face and listening to my own quivering voice in a dark room full of professors and colleagues, ready to pounce with questions, made my feet sweat profusely. But presenting was what was expected of residents. So yes, we presented, and we did lots of it. Presentations in the Pros department, presentations with other departments, solo presentations, joint presentations, presentations about what I WILL do, what I DID, and what other people did a long time ago. Among these presentations, the long-term recall seminars were the most impactful and humbling ones. After all, it wasn't too often you get to see how full mouth reconstructions done over a decade is doing now.

When you sit through many of these recall seminars and watch treatment successes and failures, you start getting a sense of the essential constituent of a successful restorative treatment. Proper diagnosis and risk assessments are always crucial when treatment planning, but I wanted to know the step-by-step thinking process prior to starting a complex rehabilitation.

Many of my mentors taught me that treatment planning should start from the incisal edge, and occlusion should be the foundation of your restorative materials. What I think they were trying to say was it is critical to consider both the static (incisal edge position) and the dynamic (occlusion) facets of the patient to have decent results. So, what's so special about this edge? I like to say every incisal edge has a story to tell. The position, and condition of the incisal edge can tell the history of the patient's functional capacity and habits. (See Fig 1)



Fig. 1 Pt with wear and fracture of maxillary incisal edges and supraeruption of mandibular anteriors leading to excess Overbite.



Fig. 2 Pt treated with orthodontics to decrease Overbite and increase Overjet to provide sufficient restorative space and to accommodate patient's envelop of function



Fig. 3 Pt with supra eruption of mandibular anteriors with minimal restorative space.



Fig. 4 Orthodontic Intrusion of mandibular incisors was performed to provide sufficient prosthetic space. Implants were placed in the maxillary anterior and provisional restorations will be used as absolute anchorage for further orthodontic movement.



Fig. 5 Negative Overbite led to breakdown of posterior dentition. A proper overbite was achieved through orthodontic treatment. #7, 8, 9 were restored with ceramic veneers to improve the shape and shade of the teeth.

So next time you see your patients, try to look at their incisal edge and try to unravel what their teeth are trying to tell you about the patient. What does the wear pattern on the edge look like? Does the incisal edge need to be repaired? Will you increase, reduce, or maintain the incisal display at rest? Then look at the overbite, and overjet. Do they look healthy? If it doesn't, and you need to make changes, how will you achieve it? Can you make changes with restorations, periodontal surgery, orthodontics, orthognathic surgery, or a combination of all these? If you need to collaborate with another specialist, what criteria will you give them to establish a sound occlusion?

I hope I was able to show you a glimpse of what goes on inside a Prosthodontist's mind during treatment planning. Be sure to contact your local prosthodontist if you haven't done so. You might be surprised how resourceful we can be in facilitating complex interdisciplinary treatments that can benefit both you and your patients. And don't forget to diagnose from the outside in and treat from inside out. Thank you very much for sticking with me until the end. ♦

In addition to studying the incisal edge, I personally take a closer look at the patient's Overbite (vertical overlap,) and Overjet (horizontal overlap) to gauge the difficulty of the treatment. Without proper vertical and horizontal overlap of the upper and lower teeth, occlusal overload can occur in localized areas leading to accelerated wear or breakdown of the teeth or restorations. In other words, mutually protected occlusion should be the goal if you want your restorations to last. When you look up the definition of 'Mutually Protected Occlusion' in the GPT-9 (Glossary of Prosthodontic Terms,) mutually protected articulation is an occlusal scheme in which the posterior teeth prevent excessive contact of the anterior teeth in maximal intercuspal position, and the anterior teeth disengage the posterior teeth in all mandibular excursive movements. An excessive Overbite with a lack of Overjet can lead to breakdown of the anterior dentition. A lack of Overbite and Overjet can also lead to excessive wear in the posterior dentition. In this situation, the overbite must be increased to provide posterior disclusion during excursive movements.

Therefore structuring a restorative treatment plan to achieve a well-balanced occlusion may not seem so simple. Establishing the ideal Overbite and Overjet can be achieved with multiple restorations (changing the VDO with restorations), with orthodontics (intruding, extruding teeth and changing the angulation of teeth), or a combination of these. To preserve as much tooth structure as possible, orthodontic movement of teeth prior to restorative reconstruction can offer patients a successful oral rehab with great prognosis.



Fig. 6 Excessive Overbite and Fremitus of Maxillary Anteriors due to lack of posterior support.



Fig. 7 Overbite and Overjet was reduced utilizing Orthodontic retraction and posterior support was established using implants.

# People Before Profit

## FROM PROFIT-DRIVEN TO PEOPLE-CENTERED: A SHIFT IN MINDSET FOR MAXIMUM SUCCESS

BY JUDY KAY MAUSOLF



Judy Kay Mausolf is a speaker, author, and dental culture specialist with expertise in helping others get happier and more successful! She coaches dentists and their teams how to become better leaders, communicate effectively, work together better and deliver service with more focus and passion which result in cultivating a happier, healthier and higher performing culture.

She is Past President of National Speakers Association (Minnesota Chapter), Director of Sponsoring Partners for the Speaking Consulting Network and a member of the National Speakers Association and Academy of Dental Management Consultants and recognized as a leader in consulting by Dentistry Today. She is author of three books; "TA-DAH, Delivering W.O.W. Service, and "Rise & Shine!"; and a contributing author for many dental magazines. She also publishes a monthly newsletter entitled "Show Your Shine".

Judy Kay lives in MN with her awesome husband Steve who makes her special coffee every morning!

Please email me at [JudyKay@PracticeSolutionsinc.net](mailto:JudyKay@PracticeSolutionsinc.net) and put R.I.S.E in the subject line if you would like to receive my R.I.S.E. Implementation Process white page.

What I find at the core of all great managers is the viewpoint of putting people before profits. It's often a huge change in mindset for many to shift the focus from profits to people. The ironic result is that the profits are much greater when we focus on people not profit.

Great managers do the following to exemplify the principle, "People before Profits".

**Clarify core values and eat, breathe and sleep them.** In other words live them by example modeling the waddle. I suggest limiting core values to no more than four or it becomes confusing for the team. Please email me at [JudyKay@PracticeSolutionsinc.net](mailto:JudyKay@PracticeSolutionsinc.net) if you would like to receive a sample of core value words.

**Hire and keep people based on character as well as skills sets.** Never sacrifice character for skill sets. Toxic Performers (people who are highly skilled and toxic to their co-workers) are not welcome to become or stay as part of the team regardless of their level of skill and longevity.

**Develop a training program with defined weekly growth expectations.** Conduct weekly growth reviews with the new team member for the first 90 days. The growth review is a discussion of accomplishments, obstacles and opportunities an how to help the new team member to succeed. The focus is on catching people doing things right and showing recognition versus catching people doing things wrong and criticizing.

**Establish a schedule that is a realistic pace centered on patient care and service and not just the bottom line.** It is essential to provide consistent exceptional service and care to patients and move at a speed which the team can be accurate, detailed and complete without running into the next appointment.

**Don't kick the dog.** In other words point the finger and look who can be blamed when the wheels fall off. Which they most certainly will some days! Instead co-create as a team...what can be done next time to keep the wheels on! The question to ask is, "So this happened so now what could we do?"

**Communicate using positive constructive conversations that build others up instead of criticizing and tearing down.** A good conversation starts with showing appreciation for 3 positives per one growth opportunity. A great conversation includes 5 positives per every growth opportunity. People have a tendency to highlight what they don't like and take for granted what they do. What is amazing is once the focus becomes seeing the positive the negative often seems very small in comparison. People lean in and try harder when they feel good about their accomplishments. People shut down and stop trying when they feel bad.

**Include the entire team in the decision making process.** People want to know that their ideas are heard, understood and at least considered. Thoughts and opinions must matter to management in order cultivate creators versus victims. A huddle or team meeting setting where most can attend is the perfect setting. Before implementing any change always get feedback from the entire team. Discuss potential obstacles and the opportunities to overcome.

The bottom line is valuing people over profits will boost the practice culture, patient experience and the bottom line! A triple win! ♦

# Conflicts: This Won't Hurt

HOW UNDERSTANDING AND SUPPORTING TEAM MEMBERS CAN RESOLVE CONFLICTS AND IMPROVE PRACTICE CULTURE

BY TRINA POULSEN AND  
SANTIAGO VALDEZ



Need help? Infinite Hygiene Consulting's Trina Poulsen and Santiago Valdez are trained facilitators for organizational mindset and culture with over 60 years of clinical dental experience. They help breakdown silos that are self-limiting and unlock infinite opportunities for your team's success- Contact Infinite Hygiene Consulting for your teams next CE event.

this curiosity that we find empathy and seeing the other person as a valuable player on the team. In other words, we have a team member with a problem not a team member that is the problem.

Recently a practice in Seattle had a conflict. They didn't know what to do about it. Everyone on the team liked this Hygienist but her chronically late arrival in the morning was creating stress for the rest of the team, doctor, and it was not the kind of customer service they were striving for.

At Infinite Hygiene Consulting, we recommended that the Doctor meet with the Hygienist and just be curious. What was limiting this Hygienist from getting to work on time? Did the Doctor really know the challenges the Hygienist had in her life? What did the Hygienist need? What barriers could the Dentist and team help resolve?

The doctor took the Hygienist to lunch to help understand the issues that the Hygienist was facing. They continued the dialog with several small check-in conversations weekly. The Hygienist felt supported in her desire to be a team player and to arrive to work on time. The team and Doctor understanding her challenges became her allies. Barriers to the late arrival disappeared and the problem was resolved. The team began to work better together.

Many dental teams are struggling these days with internal conflicts that are barriers to their success. What does this cost the practice in lost employees, decreased production, poor communication and frustrated leadership? What barriers are we creating that are inhibiting our success? What do I do to open communication during conflicts?

Today, we would like to share with you a few basic points to consider as a way to break down silos on your team that could be self-limiting. First let's consider, you may have the best RDH, RDA or Admin on the team but if they are self-focused on their goals, their needs, their patients for the day — there will be conflict.

Many times, we try and correct our teammates when they do something wrong. Sometimes it works but typically old behaviors return time and time again. Just like telling our patients they need to floss. Why is that? We keep telling but we don't always take time to truly listen.

How do you resolve conflict? We start with looking within before looking out. We need to see right so we can do right and sometimes we are limited by the viewpoint we stand closest to. Take a moment before you take action and be prepared to listen to understand and not to respond. It is valuable to come into a discussion with an open mind. It is difficult to find a solution to a problem when we think we are right. One of the tools we coach on is to learn about the struggle of the other person. What challenges are they faced with? What goals are they trying to reach? How have I made their job harder?

Next, we want to work on building relationships with your team. Connect with each individual, see them and learn about their needs, challenges, goals and how you could possibly influence them. Once we have earned the right to be heard we can move forward to possible solutions that facilitate your teams' goals and values. If we enter into a conflict with curiosity it takes much of the blame away from each person and we start to build a bridge instead of continuing to build a wall. It is in

With a meet to learn approach conversations take on a different goal. It positions a person to be more helpful to others. It allows for increased understanding of another's work so that friction can be reduced between people. This also helps a person align their own efforts with practice workplace vision and culture.

For example, think of a time when you were corrected by someone whom you feel didn't care about you. How did it feel compared to a time when someone corrected you that cared for you and had your personal and professional interest as their focus? We all want to be seen and heard, not judged, and misunderstood. Next time there is a conflict in the practice, try listening and meeting the person with curiosity and learning from them. Just like your patients, meet them where they are not where you want them to be.

Dental practices and teams that use these skills see more innovation, collaboration, communication, accountability, transparency, and authenticity as they move from what's in it for me and more about what's in it for us as a team and for our patients.

The true cost to a dental practice is extensive. It leads to increased anxiety and stress, decreased performance and productivity and reduced career and job satisfaction. This cycle fosters a climate of mistrust which hinders teamwork and cooperation. ♦

# Washington AGD Dental Assistant School

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BY DR. DZON NGUYEN MAGD



Dzon Nguyen, DDS, MAGD, FICOI, is an expert dentist practicing at Seattle Crown Hill Dental, located in Seattle, Washington. He loves his work and is determined to make each patient a raving fan. His goal is to provide quality services for his patients to achieve good long-term dental health. He believes healthy and beautiful smiles can be possible with regularly scheduled appointments and proper preventive dental care. Dr. Nguyen is trained in the most advanced techniques. Dr. Nguyen features CEREC CAD/CAM porcelain crowns in one appointment. He is both a beta tester for this amazing technology and an instructor for certifying new doctors as well as teaching advanced certification.

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Washington State's dental workforce, like many other business sectors, faces severe workforce shortages. The COVID-19 pandemic exacerbated the shortage, as more employees left the workforce. Often current and new hires are demanding exorbitant or unrealistic salaries, putting a further strain on the industry.

A May 17th, 2021 poll from the ADA Health Policy Institute found that 64% of dental practices had recently, or are currently recruiting Dental Assistants. The poll results also indicated that compared to pre-COVID efforts, 59% found the current effort of recruiting staff "extremely challenging," and 24% found it "very challenging." Additionally, the poll stated that pay rates had a reported increase of 73% overall.

With the shortage in workforce, it has become more common for dental offices to do on-the-job training of new hires who have no prior dental office work history. These training expenses are absorbed by the dental office and put further stress on existing employee resources.

With the intense competition for these positions, employees sometimes seek ever-increasing pay, jumping from one office or position to another. Employees are also being recruited from other dentists, which further increases the unrealistic salaries, and intensifies further competition. This results in elevated overhead with very few options for relief.

Dental Assistant education in Washington is not meeting the current demand of dental workforce needs. The current schools often offer long weekend programs and are quite costly. With the decline of dental assistants throughout our state, as well as COVID impacting education and careers for many, we have made a commitment to take action to help our profession. The Washington Academy of General Dentistry (WA AGD) is proud to offer a state-of-the-art dental assisting program at our Global Learning Center, located in SeaTac, WA.

The WA AGD was fortunate to partner with Dr. Mark Holifield, who has created highly successful and established dental assisting education programs. The success rate of his program has been exceptional, with 100% of students passing the course, and a 96% job placement rate. Students graduating from the program, once they receive their Basic Life Support certification, can immediately apply to become an RDA in the state of Washington.

Our goal was to have a 30-day full time program (Monday through Friday), so the education would be focused and consistent. Although weekend programs can be successful, they tend to take much longer to complete, and learning gets interrupted by work and life.

This program will allow students to complete the curriculum and graduate with the skills and education that is required to become a successful and competent dental assistant in just thirty days. Hands-on training allows students to accrue 160 hours of didactic and clinical hours upon completion of the program. The course is appropriately cost-effective for students, thereby allowing them to graduate without overwhelming student loan debt, and enabling them to join the workforce with confidence and strong earning potential.

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# Compliance 101: What I didn't Learn in Dental School

EVERYTHING RELATING TO THE GROWING NUMBERS OF  
LOCAL, STATE, AND FEDERAL REGULATIONS

BY TERRE L. HARRIS



Terre Harris, Founder and CEO, at HARRISBIOMEDICAL, has represented the dental industry and lectured throughout the country on OSHA, HIPAA, and Infection Control compliance since 1989. He's been a member of the Organization for Safety and Prevention since 2001, a consultant to Seattle Study Club members, an active member of Washington's Academy of General Dentistry and the Advisor to its Board of Directors in matters of dental office compliance.

In 1989, he founded HARRISBIOMEDICAL which has provided OSHA, WISHA, HIPAA, and Infection Control compliance programs to more than 7000 dental practices and training to nearly 215,000 dental professionals. His personal belief that people learn best and remember longer if they can laugh at the same time has helped place Terre's speaking engagements and training programs among the best and most enjoyable in the industry.

"I don't know all the questions; so how can I possibly know all the answers? In January of 1992, it was the bottom-line question posed during the monthly meeting of a south end study club. In the conference room of a local restaurant, seven Renton dentists were trying to digest OSHA's (and, therefore, WISHA's) newest regulation, the Bloodborne Pathogens Standard. Little did they know but, in one fell swoop, this regulation would change the dental industry forever and dentists across the country were asking the same questions.

The topic of the evening was the latest in a series of club discussions under the general heading, "What I Didn't Learn in Dental School". As they agreed that evening and, over the next several sessions, it was just about everything relating to the growing numbers of local, state, and federal regulations. And, consistently, while they didn't always understand the questions, or have the answers, they knew their charge was singular; they had to comply. They invited HARRISBIOMEDICAL to help.

HARRISBIOMEDICAL was founded in 1989 to assist dental and medical practices respond to the written program and staff training requirements of King County's new Infectious Waste Management regulation. In the next couple of years, requests for assistance with WISHA's Accident Prevention, Hazard Communication, and Bloodborne Pathogens programs followed and HARRISBIOMEDICAL became recognized as the full-service Compliance Company.

The requirements are many and those 1990 dentists still practicing remember when most of the early regulations were adopted; many of our younger generation of dentists weren't yet born. OSHA's Accident Prevention (1970) and Hazard Communication (1983) were already in place when the Bloodborne Pathogen Standard was implemented in 1992. The Needlestick Safety and Prevention Act amended the Bloodborne rule in 2000 and HIPAA rules were implemented in 2003, 2005, 2010, and 2013. The Globally Harmonized System (GHS) amended the Hazard Communication standard in 2016. COVID-19 brought the Respiratory Protection Program in 2020 and COVID's Supplemental Plan and OSHA's Emergency Temporary Standard was added in 2021. On top of them all, DQAC implemented Washington's Infection Control rules in 2021. At this point there are nine basic regulations, not counting anything relating to licensure that require written policies and procedures, staff training, annual review, and documentation. Each, of course, is presented in full "bureaucratize" fashion. This presentation offers a hands-on translation of what you didn't learn in dental school.

### ACCIDENT PREVENTION PROGRAM:

Each WISHA regulation requires written programs. The Accident Prevention Program was Washington’s first and is the foundation Washington’s regulations dedicated to ensuring that employees have a safe working environment. It includes basic safety requirement such as fire extinguishers, eye wash stations, written safety programs, safety meetings and staff training. It’s based on the original OSHA regulation, with a short list of more restrictive amendments. Most notably is the requirement for written safety policies and procedures that must be tailored to the activities of the individual practice and may not be generic, fill-in-the-blank programs. It also requires that employee training be provided live and interactive



- COMPLIANCE CHECKLIST:**
  - Written Accident Prevention Program – (a) tailored to your practice and (b) based on WISHA regulations
  - Monthly safety meetings - Documented
  - Reporting Accidents - Training
  - Location and use of Fire Extinguishers - training
  - Location and use of Eyewash device - training
  - Staff training - documented
  - First aid certification - documented
  - Emergency response and evacuation - training

### BLOODBORNE PATHOGENS PROGRAM:

The adoption of WISHA’s Occupational Exposure to Bloodborne Pathogen standard in 1992 completed WISHA’s employee safety program trifecta. Implemented as the measure to protect employees from exposure to pathogen-contaminated blood and/or other potentially infectious body fluids, it completely changed the everyday operation of the dental practice. From new directives requiring the use of personal protective equipment, to specific, post-procedure disinfection and sterilization requirements, identification of employee risk categories, and hepatitis B vaccinations, the new game in town wasn’t well received. And, WISHA inspectors had another reason to visit.



- COMPLIANCE CHECKLIST:**
  - Written Bloodborne Pathogens Program – (a) tailored to your practice and (b) based on WISHA regulations
  - Hepatitis B vaccination (clinical staff) - documented
  - Exposure potential tasks - documented
  - Personal Protective Equipment - training
  - Staff training – documentation
  - Post exposure management - training
  - Sharps Injury prevention - training
  - Sterilization and Disinfection – training

### INFECTIOUS WASTE MANAGEMENT PROGRAM:

The Infectious Waste Management rule is an arms-length cousin of WISHA’s Bloodborne Pathogen standard. Called biomedical waste, infectious waste, and contaminated medical waste by various governmental entities, the BPB uses the term “regulated” waste and is concerned only about the handling and management of the waste while in the medical or dental facility. In Washington, when it leaves the facility for disposal it becomes a public concern and the responsibility of the individual county governments who establish disposal guidelines and requirements. Not all counties in Washington have adopted infectious waste disposal regulations



- COMPLIANCE CHECKLIST:**
  - Written Infectious Waste Management Program – (a) tailored to your practice and (b) County rules
  - Staff training – annual; documented
  - Waste handling – training
  - Waste treatment - training
  - Waste disposal – training
  - Contingency Program – training
  - Complaints and Inspections

### HAZARD COMMUNICATION PROGRAM:

Also called “The-Right-to-Know” law, the Hazard Communication regulation was adopted to ensure that employees were advised and trained about the hazards of all chemicals with which employees were working or might be exposed. Like the other WISHA regulations, a written program and annual staff training is required. In addition to program and training elements, the basic “Communication” of the standard is required with specific emphasis on product-specific labels and other forms of warning, Safety Data Sheets, and product monitoring. In 2013, the Globally Harmonized System (GHS) amended the standard to update the informational elements of both the labels and the (then) Material Safety Data Sheets.



- COMPLIANCE CHECKLIST:**
  - Written Hazard Communication Program – (a) tailored to your practice and (b) based on WISHA regulations
  - Staff training - documented
  - Primary and Secondary labels & warnings -training
  - SDS Manual/binder – complete and current
  - GHS written procedures - training
  - Emergency response – chemical exposures training
  - Personal Protective Equipment - training

### INFECTION CONTROL:

After more than four years of Committee meetings and dedicated effort of DQAC’s Infection Control Committee and staff, Washington’s new Infection Control and Prevention were adopted in late 2020 and became effective in January of 2021. Based upon the CDC’s 2003 and 2016 guidelines for dental healthcare professionals, the new rules establish eight basic rules including protocols and procedures for hand hygiene, dental unit water quality, disinfection and sterilization, sterilization of low speed handpiece motors (August, 2022), written Infection Control programs and annual staff training.



- COMPLIANCE CHECKLIST:**
  - Written Infection Control Program – (a) tailored to your practice and (b) DQAC rules
  - Staff training – annual; documented
  - PPE – training
  - Environmental Infection Control - training
  - Spaulding Classification – training
  - Transmission Precautions – training
  - Disinfection & Sterilization – training
  - Dental Unit Water Quality - training

### RESPIRATORY PROTECTION PROGRAM:

The requirement of a written Respiratory Protection Program is a child of COVID-19’s impact on the medical and dental communities. When WISHA and Washington Governor mandated wearing an N95 respirator during aerosol-generating procedures, the requirements for fit-testing, seal-testing, and written Respiratory Protection Programs came with it. Just as WISHA and HIPAA require written programs that must be tailored to the activities of the individual practice, so it is with the Respirator regulation. All practices that use respirators must have written policies and procedures.



- COMPLIANCE CHECKLIST:**
  - Written Infection Control Program – (a) tailored to your practice and (b) WISHA rules
  - Respirator selection
  - Medical Evaluation
  - Fit testing
  - Seal testing
  - Staff training

**HIPAA PRIVACY RULE:** The HIPAA Privacy rule was implemented in 2003 as the first of four significant rules designed to protect a patient’s personal medical and dental records as well as other individually identifiable health information defined as Protected Health Information (PHI). For the most part, the Privacy Rule addressed the management of patient information documented in a paper format. Required written and physical safeguards, to protect the patient’s privacy, along with established limits and conditions of use, are the cornerstones of the Privacy Rule. Terms like “covered entity” and “Business Associates” became commonplace and, as with WISHA, written policies and associated staff training are central to HIPAA

- ☑ COMPLIANCE CHECKLIST:**
- Written Privacy Rule Program – (a) tailored to your practice (b) current
  - Staff training – documented
  - Statement of Privacy Practices (SPP)– offered & posted in office and website
  - Acknowledgement of Receipt of SPP – offered and documented
  - PHI security - facility and records
  - Breach Disclosures - training
  - Breach protocols - training
  - Breach notification – training
  - Annual risk assessment - documented



**HIPAA SECURITY RULE:** HIPAA’s Security Rule was implemented two years after the Privacy Rule, in 2005. While the Privacy rule centered primarily on protecting patient paper records, the Security Rule established standards to protect patient records in the electronic format. Specifically, patient information that is created, received, used, and/or maintained electronically requires additional security safeguards to ensure protection of electronic protected health information. The Security rule equivalent to the Privacy Rule’s PHI is ePHI

- ☑ COMPLIANCE CHECKLIST:**
- Written Security Rule Program – (a) tailored to your practice and (b) current
  - Administrative safeguards – documented / training
  - Workforce security (staff) – documented / training
  - Staff Training – annual; documented
  - Information management – training
  - Security Incidence Protocols – training
  - Contingency Plan – training
  - Physical Safeguards -training
  - Access Controls – training
  - Technical Safeguards – training
  - User ID and Passwords - documented / training
  - Encryption
  - Up-to-date malware detection software
  - Audit Controls



**HIPAA BREACH NOTIFICATION RULE:** By HIPAA’s definition, a “breach” is an impermissible access, use, or disclosure of a patient’s PHI that compromises the security and/or privacy of the protected information. The Breach Notification Rule establishes the processes and steps necessary to investigate, report, and provide notification to affected patients and to Health and Human Services. The U.S. Office for Civil Rights is the investigative arm for HHS for all HIPAA complaints and reported. PHI breaches.

**HIPAA OMNIBUS RULE:** The Omnibus rule was adopted as significant amendment to the Privacy and Security rules including substantive changes to the management responsibilities of Business Associates management of PHI and ePHI. Business Associates were required to comply with, and be directly liable for, violations of HIPAA’s Security Rule technical, administrative and physical safeguards.

**OSHA OR WISHA; WHAT’S THE DIFFERENCE?**

OSHA is WISHA’s “Mamma”. The Occupational Safety and Health Act (OSHA) is the federal regulation that requires all employers to provide a safe working environment for their employees. The Act allows OSHA-approved “State Plans” which are operated and enforced by the individual states rather than federal OSHA. Washington’s-approved State Plan; is the Washington Industrial Safety and Health Act (WISHA). This means in Washington, it’s WISHA, not OSHA. Federal OSHA protects federal employees and WISHA protects non-federal employees (everybody else).



**WISHA – WASHINGTON INDUSTRIAL SAFETY AND HEALTH ACT**

The Washington Industrial Safety and Health Act is responsible to ensure the safe and healthful working conditions for every (non-federal) man and woman in the state. The Department of Labor and Industries has the responsibility to administer the state’s safety and health programs. The Division of Safety and Health (DOSH) is the enforcement arm charged to ensure employers follow the rules, implement safety programs, and provide a safe working environment. It is DOSH that responds to complaints and conducts compliance investigations.



The three primary WISHA regulations designed to protect employees at work in Washington are the Accident Prevention, Bloodborne Pathogens, and Hazard Communication. Employers are required to establish in-house safety programs for each of the regulations that include written policies and procedures, staff training, on-going monitoring, and annual review.



HARRISBIOMEDICAL is one of the country’s leading compliance firms, providing a full range of client services designed to help the dental industry respond to the mandates of OSHA, HIPAA, and Infection Control regulations. It established its leading-edge reputation by responding to client needs in direct, reliable, and accountable ways.

The introduction and preparation of its Accident Prevention, Hazard Communication, Exposure Control, Infectious Waste, Respiratory Protection, Infection Control, and COVID-19 supplemental written programs, along with the associated staff training, led to HARRISBIOMEDICAL becoming the health care industry’s answer to compliance concerns.

Founded in 1989, HARRISBIOMEDICAL has prepared more than 8000 WISHA and OSHA programs, provided compliance programs and training to nearly 215,000 dental professionals. HB is recognized as the company that can not only ensure immediate written compliance and staff training, but can answer the ever-troublesome compliance questions. This added “information service” contributes significantly to its reputation as “The Compliance Company

Terre Harris, President/CEO, has represented the dental industry and lectured throughout the country on OSHA, HIPAA, and Infection Control compliance since 1989. He’s been a member of the Organization for Safety, Asepsis, and Prevention since 2001, a consultant to Seattle Study Club members since 2014, an active member of Washington’s Academy of General Dentistry and the Advisor to its Board of Directors in matters of dental office compliance. His personal belief that people learn best and remember longer if they can laugh at the same time has helped place Terre’s speaking engagements and training programs among the best and most enjoyable in the industry. ♦

# Technology Solutions for Today's Dental Practice Challenges

## WAYS TO INCREASE EFFICIENCY AND ADD PROCEDURES

### BY BURKHART DENTAL



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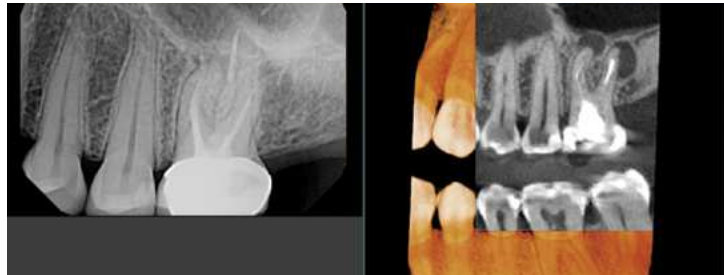
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**BURKHART**  
DENTAL SUPPLY

*Integrity Knowledge Client Success*

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With inflation increasing overhead and staffing shortages being a reality for the foreseeable future, your dental practice has two options: add additional procedures or implement more efficient processes. In fact, many dental CPA and consulting firms are projecting that practice overhead will rise by anywhere from 5% to 8% in 2022. And according to WEAVE, 48% of dental offices in a July 2020 survey say they were short-staffed. To overcome these ongoing shortages, 41% of healthcare practices are now investing in new technology to help compensate for staffing limitations.



In a July 2021 ADA survey, the top four technologies that dentists believe would “have a transformative impact on their practice this year” included: 1) intraoral scanners (55%), 3D printing (50%), imaging (40%), and CAD/CAM (36%). These technologies can help improve your overhead through increased efficiencies and add to the bottom line with additional procedures.

It is becoming more difficult to show a profit in a restorative only practice. Whereas GPs providing implant services reported an average income of \$355,570 (median \$275K), those not providing implant services reported an average income \$242,558 (DE survey, January 2022). The key to adding implant, endodontic, and other surgical procedures to your practice is case selection. I like to say “wash your hands of the difficult case before you get your gloves wet” or “stay in the lane you feel comfortable driving in.” Technology helps you stay in your lane with enhanced diagnostics. Patients would prefer to stay in your practice for those procedures if possible. We found that when surgically minded GPs practice careful case selection, referrals to specialists typically go up.

CBCT imaging is the most comprehensive tool for adding procedures and efficiencies by providing predictable diagnostics. For example, with the advancement of low-dose 3D imaging, the concept of a 3D PA (replacing a PA for diagnosis) is often a better clinical choice. According to a study from Clinical Research 2017, 50% of small volume scans found asymptomatic abnormalities. Studies of large FOV CBCT scans show the prevalence of incidental finding to be greater than 90%. During 3D training, we often find these infections and other asymptomatic issues on the scans. The direct connection between oral health and overall systemic health emphasizes the importance of early

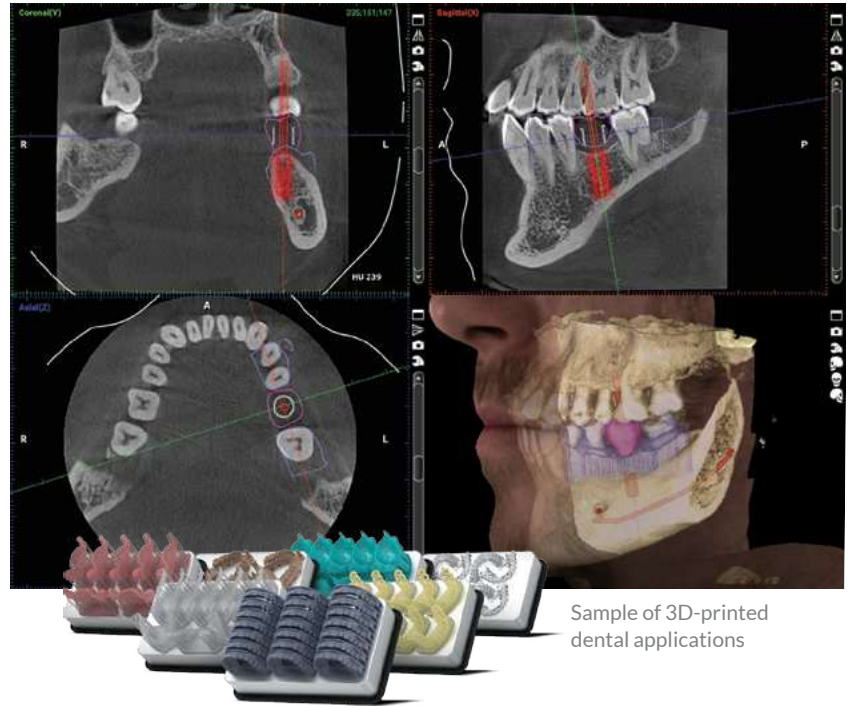
diagnosis. “If you can’t see it, you can’t treat it.” Intraoral scanning and 3D printing are other technologies able to streamline your workflow and empower your staff to perform procedures they can get excited about — while adding to the profitability and efficiency of your practice. IO scanners can be a simple scan-and-send (to your lab) or a full design with CAD/CAM. Many systems offer their version of design software, so be sure to evaluate how that lines up with the services you would like to provide in your practice.

Arguably, 3D printing is the easiest way to improve efficiencies and add services. You can now print nightguards, temporaries, surgical guides, full models, denture teeth, and more with the advancement in resins. Plus, the cost to design and print a nightguard is under \$40 and if the patient loses the appliance, you can easily reprint for \$10 in materials. Simply scan, design, print, and deliver. Occlusal guard presentation tips are available from Burkhart’s Practice Support Team (PST).

Your trusted dealer partner will work with the manufacturer to set up training for you and your staff within days of your install. At Burkhart, we provide additional services to ensure proper implementation of your investment. Burkhart’s PST provides a specific technology training manual that is a useful reference after your initial Technology Solutions for Today’s Dental Practice Challenges Ways to increase efficiency and add procedures By Joe Martin in collaboration with Margaret Boyce-Cooley and Joe Erbaugh training. The manual covers topics like teamwork, return on investment, training, scheduling, fees and billing protocols, and coding as well as how to market your new technology.

Surgical guides are amazing tools to overlay your cone beam (hard tissue) with your IO scan (soft tissue) for restorative and implant-driven surgical planning. With this technology, you can digitally plan your case and have a surgical guide giving you the confidence to add these procedures to your own practice.

As a Technology Specialist for Burkhart, I’ve seen many dentists, since COVID-19, selling or retiring early due to lack of profitability and staffing challenges. The doctors purchasing these practices often reach out to me looking to add 3D technology, intraoral scanning, and/or 3D printing. If the purchasing doctor does not currently own a practice or has not in the past, they often cannot obtain a loan to add technology for at least two to three years. The conversation frequently comes up about whether selling doctors should purchase technology before they sell, like adding a new roof on a house before it goes on the market. If your practice is not digital with intraoral and extraoral 2D radiology, you should consider upgrading before listing your practice. If you can benefit from 3D and IO scanning during the last few years of owning the practice, this



Sample of 3D-printed dental applications

may be a good option. There is often a tax write-off while you enjoy new technology and have a high-tech office to entice a future buyer.

After 26 years with Burkhart, my favorite part of my role as a Technology Specialist is providing pertinent technology equipment that helps doctors grow their practice and rejuvenates their excitement in dentistry. It is especially rewarding after having an initial discussion with a struggling new dentist, then visiting with them five to 10 years down the road in a very productive healthy practice.

At Burkhart, we are here to help our clients in any way we can, and truly partner with you. Burkhart is family owned with Lori Isbell Burkhart, our fifth-generation president. Burkhart was founded by a dentist in 1888 by Dr. William E. Burkhart right here in Washington State. Our mission statement stands true with everyone at Burkhart: Integrity, Knowledge, and Client Success. At Burkhart, we represent most of the manufacturers and take the time to find the equipment that will best fit your needs. We look forward to the opportunity to work with you and for all our clients in Washington, we truly appreciate your business and relationships built over the years.

We have several Account Managers, Equipment Specialists, and Service and Technology Technicians in your area to serve you. As the Technology Specialist for the Western Washington area along with my colleague, Joe Erbaugh, the Clinical Digital Specialist for the Eastern Washington Area, we hope this article has been helpful. We would enjoy the opportunity to connect with you to help in any way we can. If you would like copies of the referenced materials, please email Joe Martin or Joe Erbaugh. ♦

# Airway, Sleep, and The Way We Breathe

## HOW SKELETAL GROWTH AND DEVELOPMENT IMPACT RESULTS

BY DR. REBECCA BOCKOW



Dr. Rebecca Bockow is a dual-trained, board certified orthodontist and periodontist whose practice—Inspired Orthodontics—has two locations: Bellevue and Seattle WA. A resident faculty member at Spear Education, Dr. Bockow is a nationally recognized lecturer on periodontics, orthodontics, interdisciplinary orthodontics, airway, and skeletal growth and development.

Dr. Bockow received her BS in Biology from Haverford College, completed her DDS training at the University of Washington Dental School, and completed a highly selective dual-specialty program of Orthodontics and Periodontics at the University of Pennsylvania as well as a Masters in Oral Biology.

The way we breathe has a direct impact on skeletal growth and development. Mouth breathing and early habits such as non-nutritive sucking can lead to deficiencies in both the maxilla and the mandible. Small jaws can lead to an undersized airway and subsequent difficulties in breathing, which greatly impacts one’s ability to sleep and function. What factors drive skeletal growth and development? What we do with our tongue at rest, during speech, and during swallowing; the way we breathe starting at an early age; and other early habits all play a large role in skeletal, dental, and airway development.

Many of these habits—both good and bad—start at an early age. Breastfeeding is the first thing that kicks off skeletal growth and development. Babies are obligate nasal breathers while breastfeeding, so the act of breastfeeding helps establish development of the nasal passages early in life. Full tongue range of motion, including lifting of both the anterior and posterior portion of the tongue, allows a baby to empty the mother’s breast. The tongue coming up and into the roof of the mouth establishes a proper swallow pattern and also starts to shape and form the palate. Palatal width also has a direct correlation with the width of the floor of the nose. Breastfeeding helps encourage midfacial development, condylar development, and a downward/forward growth of the mandible.

It is important to establish nasal breathing at an early age. The nose moistens and filters the air. Nasal breathing with the tongue up and lips together helps the jaws grow both in the width and in a forward direction.

Once the cycle of mouth breathing starts, it is challenging to reverse it. Many things can impede facial growth at an early age and lead to mouth breathing. A tongue tie or any restriction in tongue mobility can lead to unsuccessful breastfeeding and/or insufficient skeletal growth and development. The lack of tongue pressure early on into the roof of the mouth and guiding the lower jaw forward can lead to undersized jaws and undersized nasal passages, which lead to mouth breathing. Mouth breathing can then lead to increased inflammation which can include inflamed adenoids and tonsils, further exacerbating the cycle of mouth breathing. A child who breathes with his or her mouth opened will tend to experience a downward and backward mandibular growth trajectory. Clinically, this growth pattern may manifest as crowding, a small lower jaw, a gummy smile, and/or an anterior open bite. A lack of forward tongue pressure can also lead to an undersized upper jaw, which clinically manifests as an underbite as a child continues to grow. A lack of upward tongue posture can also present as a narrow upper jaw, appearing clinically as a crossbite (unilateral or bilateral). If both arches are narrow, the teeth may converge towards the tongue. We may see anterior crowding but there may or may not always be a clinical crossbite.

As dentists, we are often the first to identify the symptoms of airway problems. We can watch for the following concerns that may indicate an airway issue:

- Dental grinding/wear
- Tongue ties
- Underbites
- Overbites
- Anterior open bite
- Crossbites
- Crowding
- A gummy smile
- Inflamed gingiva
- An otherwise unexplained incidence of

high caries

If you notice these problems, consider asking the patient how he or she sleeps at night. You may be surprised by some of the answers you receive.

In order to truly rehabilitate a patient, we need to consider the structure, function, and behavior of the patient.

- Structure - Health of the jaws
- Function - Can the patient breathe through his or her nose? Can the patient keep lips together and tongue up?
- Behavior - Is quiet nasal breathing and tongue up a habitual behavior, or is the patient a habitual mouth breather?

Globally, our goals for treatment include creating sufficient bone to support the teeth and helping encourage the jaws to grow forward and counter-clockwise. For example, narrow arches, as well as deficient jaws, can take up tongue space and can possibly correlate with poor sleep. Early intervention is key to getting growth on track. For adults, surgery is sometimes the most comprehensive option with the greatest likelihood for resolving the sleep, airway, and functional issues.



Initial presentation of an 8 year old male. Health history included unrefreshing sleep, hyperactivity, mouth breathing, high caries, night time grinding, struggling with speech therapy. Treatment included caries control and diet counselling, bimaxillary expansion, and myofunctional therapy. Radiographically, tonsils shrunk after expansion. Sleep quality improved and grinding reduced as reported by parents. His open bite closed all on its own once we created more room for the tongue.



An 8 year old female presented with an open bite and a forward tongue thrust. She was a habitual mouth breather both day and night. Treatment included bimaxillary expansion and myofunctional therapy. No braces or aligners were used and the open bite closed on its own as we made more room for the tongue.

Initial presentation:

Final Smile: wider and less gummy smile.



An adult female presented with a chief concern of an unaesthetic smile. Her prosthodontist, Dr. Gregg Kinzer, observed there was more than unaesthetic and uneven crown margins. He noted a double crossbite, vertical maxillary excess, and a deficient mandible. After asking her a series of sleep and quality of life related questions and completing a sleep screen with his office, he recommended a more comprehensive approach to care. She was seen in our orthodontic office where we referred her to our oral surgeon, Dr. Sam Bobek. Our treatment plan included pre-surgical orthodontics and aligning maxillary gingival margins. She then underwent double jaw surgery to widen her upper jaw, impact her upper jaw, and bring her lower jaw forward. After surgery and orthodontics, Dr. Kinzer completed her restorations.

As another example, open bites may sometimes be the result of a patient bringing the tongue forward to open the airway. If an orthodontist or dentist attempts

to close the open bite without diagnosing and treating the airway issue, the tongue will always win as a patient will fight to breathe, resulting in relapse. If you see an open bite, look for enlarged tonsils, compromised nasal passages, and or a tongue tie. When an orthodontist or dentist correctly identifies an airway issue and makes room for the tongue, the correction may be more stable and often fixes more than just the patient's open bite. Successful outcomes include interdisciplinary management – an orthodontist can help with expansion and open bite closure, etc. A restorative and or pediatric dentist can help with oral hygiene, diet counseling, and caries control. An ENT can help with adenoid and tonsillectomy when indicated. A pediatrician and or allergist can help eliminate environmental triggers that lead to mouth breathing. A myofunctional therapist, speech therapist, and or occupational therapist can help with tongue and peri-oral muscular tone, establishing habitual nasal breathing, and lips together. If there are any non-nutritive sucking habits, finding a specialist like a myofunctional therapist to help with this is also key to a successful outcome.

As orthodontists and as dentists, we have the opportunity to ask new questions. What are we seeing in the growth pattern of the patient in front of us? Is the malocclusion or skeletal pattern the result of the way our young patient is breathing? What habits might be contributing to clinical conditions we see? Once we start addressing the "why", we may find that our treatment plans focus on treating the cause rather than the effect. ♦

## REVIEW OF COMMON

# Oral Soft Tissue, Glandular and Epithelial Diseases

—THE UNIVERSITY OF WASHINGTON SCHOOL OF DENTISTRY EXPERIENCE

BY DR. DOLPHINE ODA



Dr. Dolphine Oda, one of the UW School of Dentistry's most acclaimed and respected teachers in the course of her 37 years on the faculty, retired at the end of 2022.

Dr. Oda is former Professor of Oral Pathology in the Department of Oral and Maxillofacial Surgery and director of the UW's Oral Pathology Biopsy Service. She also holds medical staff appointments at the University of Washington Medical Center and Harborview Medical Center.

Article references can be found on the Washington AGD website's home page at [www.washingtonagd.com](http://www.washingtonagd.com)

The Oral Pathology Biopsy Service at the School of Dentistry, University of Washington, has served the state of Washington with distinction and dedication to optimizing care for patients for over sixty years. In typical years (those not affected by COVID-19 shutdowns), this unit receives over 7,000 biopsy specimens annually. The most common and most important conditions among those specimens are selected for discussion in this manuscript. These conditions fall into a range of categories. Most are benign, some are reactive, and others are neoplastic. Still other conditions fall into the immune-mediated category. The focus of this review is on the clinical presentation and management of these conditions. These conditions include fibroma, pyogenic granuloma, mucocele, mucoepidermoid carcinoma, lichen planus/lichenoid mucositis, mucous membrane pemphigoid, white patches, frictional keratosis, smokeless tobacco keratosis, leukoedema, traumatic ulcer/TUGSE and squamous cell carcinoma. Each condition will be accompanied by a typical clinical photograph.

## FIBROMA (FIGURE 1)

Fibroma, also known as traumatic fibroma or irritation fibroma, is one of the most common benign soft tissue lesions in the oral cavity. Fibromas of the oral cavity, as depicted in Figure 1, are the consequence of chronic, mild, repeated trauma to a certain area, such as chronic chewing. The buccal mucosa (cheek) is the most common site followed by the lower lip, lateral and anterior tongue. It is rare in children and mostly affects adults between 30-50 years of age with no sex predilection. Clinically, it presents as sessile (broad based), dome shaped, smooth surfaced lesions with stock on appearance. The color is usually pink but can be white with a heavily keratotic surface. Fibromas in dark-skinned individuals may appear gray, brownish, or lightly purplish due to melanin production by melanocytes in the basal cell layer. Sizes vary from a few millimeters to few centimeters, averaging around 1–1.5 cm in diameter. They are usually asymptomatic, but surface ulceration may cause pain. Histologically, a fibroma is a mass of dense connective tissue, almost scar-like, covered by epithelium that is usually keratinized and can, at times, ulcerate secondary to a deep bite of the area. Conservative surgical removal and cessation of the habit of chewing is the treatment of choice. It has no tendency for recurrence unless the patient repeats traumatizing of the area.



FIGURE 1

[Fibroma on the right buccal mucosa of a 37-year-old female]

## PYOGENIC GRANULOMA (PG) (FIGURE 2)

Pyogenic granulomas are common reactive soft tissue swellings. They represent a profuse mass of vascular granulation tissue at the early stage which undergoes fibrosis and hyalinization as it heals. Local irritants such as excessive plaque, sharp fillings and dental calculus are associated with inducing PG. They occur anywhere in the oral cavity and skin, especially the gingiva, tongue, lips, fingers, and nail beds. In the mouth, PG occurs most commonly on the gingiva in about 75% of cases. Maxillary buccal and interproximal gingiva are the most common sites. On rare occasions, a PG may surround a tooth. At the early stage of development, it is

highly vascular, fast-growing, exophytic, lobular, sessile, and ulcerated or covered by pseudomembrane. The color changes from red to pink as the lesion starts to heal. It can occur at any age and sex with a predilection for females at puberty and pregnant females. In the US, PG affects 1% of pregnant females. These PGs are more commonly known as “pregnancy tumors,” or granuloma gravidarum (Figure 2). Pregnancy tumors are usually evident in the last trimester, around the seventh month of pregnancy. However, they may start developing earlier in the pregnancy. Many of the PGs in pregnant females regress after delivery and some undergo fibrosis.

PGs are generally painless except during eating or when ulcerated. In cases of ulceration, bleeding and pain is described. Histologically, pyogenic granulomas present as a mass of loose and vascular granulation tissue, usually with ulcerated or eroded surface epithelium and many inflammatory cells. A range of treatment modalities are available, including excision with removal of the local irritant, laser surgery, or intralesional injection with absolute alcohol, steroids, and botulinum toxin. Scaling and polishing prior to surgical removal helps shrink the lesion. The recurrence rate of PG in the general population is around 5% and in pregnant females is around 16%. In pregnant females, PG can recur within 2–6 weeks of excision.



**FIGURE 2**

*[Pregnancy tumor/pyogenic granuloma on the mandibular buccal gingiva of a 20-year-old Female who is 7-months pregnant]*

### MUCOCELE (FIGURE 3)

Mucoceleles are very common reactive lesions of lower lip minor salivary gland origin. Ranulas are the counterpart occurring in the anterior floor of mouth. Mucocele is a clinical term describing exophytic, fluid filled, fluctuant nodules which are usually embedded deep into the connective tissue but can also be superficial as depicted in Figure 3. They are typically of minor salivary gland origin and present mostly on the lower lip, the floor of the mouth and anterior ventral tongue. Over 90% of these lesions are cyst-like structures, or pseudocysts, and are mucous extravasation phenomena referred to as mucoceles. Some of these lesions are true cystic structures lined by epithelium and filled with mucus and are called mucus retention cysts or salivary duct cysts. These constitute a small percentage of all mucoceles. Ranulas, mucoceles of the floor of the mouth, constitute around 5% of cases. The majority of ranulas are above the mylohyoid muscle, and some are below it. The latter are also known as plunging ranulas or cervical ranulas.

Ranulas are of minor or major salivary gland origin and are mostly extravasation in type.

Mucoceleles are more commonly seen in children and adolescents. Mucoceleles present as swellings with a light bluish or grey color if superficial, while deep mucoceles tend to take the color of the surrounding mucosa. Mucoceleles tend to fluctuate in size. They are usually associated with a history of sharp trauma cutting through the salivary gland duct and releasing the mucous in the extracellular tissue of the lower lip, anterior tongue, and anterior floor of mouth. They can also be secondary to surgery in the area. This is especially true in the case of anterior tongue mucoceles. Surgical excision with the associated minor salivary gland is the preferred treatment for deep mucoceles; superficial mucoceles can self-heal within 2–3 weeks and therefore one can watch superficial mucoceles for up to three weeks to allow them to heal. Superficial mucoceles can also mimic vesiculobullous-type



**FIGURE 3**

*[Superficial mucocele on the middle lower lip of a 6-year-old female]*

diseases because they look like vesicles, especially when presenting in multiples (rare, but described). They can recur if the source of trauma is not eliminated or if they are secondary to surgery. Simple (non-plunging) ranula is best treated by marsupialization into the floor of mouth. Plunging ranula requires complete excision via an extra-oral approach. The technical difficulties associated with the complete removal of this thin-walled lesion result in a relatively high recurrence rate.

### MUCOEPIDERMOID CARCINOMA (FIGURE 4)

Mucoepidermoid carcinoma (MEC) is the most common malignant neoplasm of salivary gland origin. The prevalence of MEC does not compare to that of fibromas, PGs and mucoceles of the oral cavity; these neoplasms do not hold a place on the list of most common soft tissue lesions of the mouth. Nevertheless, they are important to describe because of their tendency to occur in adolescents and children under 20 years of age (Figure 4) and because they can be overlooked or under-diagnosed due to their unremarkable clinical appearance.

MEC is a malignant neoplasm of salivary gland origin that can present as a smooth-surfaced swelling or a non-healing ulcer on the posterior and/or lateral palate. It occurs in a wide age range. MECs account for 10% of all salivary gland neoplasms. While the majority occur in the parotid gland, some also occur in minor salivary glands, especially the palate, buccal mucosa, lips, and retromolar pad area. MEC can occur at any age with a predilection for occurrence in young individuals. Studies by

the Armed Forces Institute of Pathology (AFIP) find 44% of cases occurring in patients under 20 years of age, most commonly on the palate. Their youngest patient was nine months old. Three histologic types are described: low, intermediate, and high-grade. Low-grade MECs are slow-growing and painless, and not encapsulated; they sometimes resemble a mucocele, especially those at the retromolar pad area.

Retromolar pad area mucoceles are rare, and for that reason, it is best to biopsy them early to exclude the possibility of a MEC masquerading as a mucocele. High-grade lesions tend to be more common in the parotid gland; they present as rapidly growing, painful lesions with facial nerve paralysis and sometimes with regional lymph node metastasis. Histologically, mucoepidermoid carcinoma consists of a variety of cell types and architectural patterns which constitute the three histologic gradings. Although low-grade mucoepidermoid carcinoma is characterized by an abundance of mucous-producing cells and duct-like



**FIGURE 4**

*[Swelling with nonhealing ulcer on the posterior and lateral hard palate]*

structures with cystic dilation, the mere presence of certain types of cells and architecture should not be used to determine the histologic grade. More than one grading classification are described to help pathologist determine histologic grading. Complete surgical removal with clean margins is the preferred treatment for the low-grade type. Radiotherapy has also been successfully used, especially when the tumor involves the surgical margins.

## LICHEN PLANUS/LICHENOID MUCOSITIS (FIGURE 5)

Lichen planus is a common chronic immune-mediated disease affecting 2% of the population. It has a variety of clinical presentations, management, and predisposing factors that renders it a family of diseases rather than one entity with a specific treatment modality. Lichen planus can be immune mediated, drug induced, associated with transplant rejection (also known as graft versus host disease), or associated with a variety of restorative material, especially gold restorations. It is also seen in families in rare cases. It is known to undergo malignant transformation in about 2.5% of cases. Given the versatility of this disease, it is difficult to apply one treatment modality for all presentations.

The most common type of LP is the chronic T-lymphocyte-mediated disease where CD4 (early stage) and CD8 (later stages) T-lymphocytes are stimulated, releasing lymphokines such as a tumor necrosis factor, which lead to the destruction of the cells in the basal and parabasal cell layers. This type of oral LP tends to come and go, sometimes lasting a lifetime. Lichen planus of the skin usually resolves within 1-3 years while only 20% of oral LP cases resolve in that period. LP occurs in adults between 30 and 70 years of age with a strong female predilection. Skin LP presents as purplish, pruritic papules with a white keratotic surface, commonly on the flexor surfaces of the wrists, trunk, and the genitalia. Oral LP presents as keratotic and reticular (the reticular pattern is the most common type as depicted in Figure 5), atrophic or erosive (the erosive type is the most important clinically), or plaque-like (the hypertrophic type, which is the least common). Oral LP presents most commonly in a symmetrical manner on the bilateral buccal mucosa, followed by tongue and gingiva. Reticular type LP is asymptomatic and presents with interlacing lines against an erythematous bluish background;

the lines are known as the striae of Wickham. Erosive type LP, on the other hand, is symptomatic; patients complain of sensitivity to hot and cold, spicy, acidic, and alcoholic food and beverages. Erosive LP also presents in locations like those of the reticular type. At times, erosive LP can be hard to distinguish from other mucocutaneous diseases such as mucous membrane pemphigoid (MMP) and pemphigus vulgaris (PV). Hyperplastic or plaque LP is uncommon and presents as a confluent white plaque that is often mistaken for leukoplakia. The hyperplastic type is more common on the dorsal surface of the tongue, gingiva, and palate, making a clinical diagnosis of LP difficult at times, especially if the patient smokes. LP can also present on the gingiva alone as a thin and atrophic lesion, which clinically can be described as desquamative gingivitis. The clinical differential diagnosis for desquamative gingivitis includes mucous membrane pemphigoid and pemphigus vulgaris.

A discussion of LP would be incomplete without addressing Lichenoid mucositis. The generalized type of lichenoid mucositis is usually associated with drug ingestion, prescribed or over the counter. This type of lichenoid mucositis is especially common in elderly patients. It most frequently presents as erosive lichen planus on the bilateral buccal mucosa and vestibule. It is associated with the ingestion of several medications including antibiotics, antihypertensive drugs, allopurinol (gout), diuretics, antidiabetics, gold, mercury, antihistamines, and many others. Localized lichenoid mucositis has been widely reported in association with restorative material, especially with gold restorations.

The malignant potential of oral LP is a significant clinical concern, especially in long-term erosive lichen planus patients; transformation in reticular LP has also been



**FIGURE 5**

[Lichenoid mucositis on the bilateral buccal mucosa and vestibule of a 47-year-old male]

documented, albeit rarely. The World Health Organization defines oral LP as a precancerous condition with the understanding that the risk for transformation is only around 2.5%. The locations of transformation involve the buccal mucosa, tongue, and gingiva—the same locations as the most common sites affected by conventional lichen planus. Lichen planus is a disease that requires both clinical and histological features to arrive to a definitive diagnosis. Depending on the LP type, the epithelium ranges from thin and erosive to thick and keratotic. All types have a band-like infiltrate of T-lymphocytes. The basal cell layer shows evidence of degeneration; rete pegs are or are not present, basement membrane zone is thickened, and cytoid bodies (Civatte bodies) are usually present. The immunofluorescence (IMF) features include positive staining with antibody to fibrinogen present along the basement membrane. Treatment ranges from no treatment for the asymptomatic reticular type, to topical steroids, intralesional steroid therapy (rarely used), and systemic steroid therapy (if the condition is severe such as in erosive LP). The best treatment for lichenoid drug reaction is replacement of the causing medication with a substitute. Treatment for transformation follows the criteria for the treatment of oral squamous cell carcinoma.

## MUCOUS MEMBRANE PEMPHIGOID (FIGURE 6)

Mucous membrane pemphigoid (MMP) is the preferred name for the overall disease. Like many of the vesiculobulbous diseases, MMP is a chronic immune mediated disease predominantly affecting mucosa. The immune system recognizes multiple antigens in the region around the basement membrane and hemidesmosomes as foreign attacking the foreign antigen with an immune complex made of IgG/C3. The process generates inflammatory cells that release enzymes destroying the hemidesmosome causing separation of the surface epithelium from the connective tissue (desquamation of epithelium).

The oral mucosa, and specifically the gingiva, is commonly affected up to 94% of the time as depicted in Figure 6. Second to gingiva are the eyes which are affected by about 81%. MMP is more common on the gingiva, which places the dental practitioner in a unique position to recognize the symptoms of this condition at early stages which can protect the patient from losing their sight. MMP of

the eyes and nose tend to heal with scarring while oral lesions usually heal without scarring. MMP lesions of the eyes can cause blindness through scarring. Scarring is also described in the nose, nasopharynx, genitalia, skin, larynx, and esophagus. Patients with MMP may have circulating antibodies but they do not correlate to the severity of the disease. In the oral cavity, MMP presents as red gingival patches with loss of stippling or thinning of the gingiva. There may be sloughing and desquamation of the epithelium, especially because of mechanical pressure such as from brushing, eating solid food or denture irritation. If not treated, it may extend to the palate, tongue, buccal mucosa, and other areas in the mouth. Clinically, MMP shows a positive Nikolsky sign. Microscopically, MMP is characterized by sub-basilar split (with an intact basal cell layer as part of the detached epithelium) of the intact surface epithelium from the underlying fibrous connective tissue. Many inflammatory cells, including eosinophils, are present.



**FIGURE 6**

[Mucous membrane pemphigoid presenting as generalized maxillary and mandibular sloughing gingival epithelium of a 68-year-old male]

Immunofluorescent studies are required in rendering a definitive diagnosis. MMP is usually positive with IgG and C3 antibodies present in form of uniform line along the basement membrane. The best biopsy site for IMF studies is a perilesional area rather than the sloughing and detached area. Treatment includes local and systemic steroids and immune suppressants, depending on the severity of the disease. Antibiotics for secondary infections are also prescribed.

## WHITE PATCHES (LEUKOPLAKIA) (FIGURE 7)

White lesions of the oral cavity are of varied etiologies and thus each is best treated according to its etiology or lack of one. White patches affect almost 1% of the population in the USA, including around 6% of males over 70 years of age, and are slowly progressive. Clinically, they range in presentation from thin, grayish, and translucent to rough, white (Figure 7) to yellow and leathery in consistency. White patches are of varied etiologies including trauma, tobacco, alcohol, vitamin A deficiency and idiopathic.

White patches are particularly important to attend to when they are in heavy smokers, in high-risk locations such as the floor of mouth and ventral tongue and when they are idiopathic (no known etiology). Idiopathic white patches usually present in high-risk locations especially in the floor of mouth and ventral/base of tongue and are usually of unknown duration. A brief discussion follows of the two most common white patches, trauma induced (frictional) and smokeless tobacco induced.



**FIGURE 7**  
[White patch on the dorsal surface and lateral border of tongue in a 61-year-old male]

## FRICTIONAL KERATOSIS (FIGURE 8)

It is very important to identify the etiology of white patches prior to deciding whether to biopsy. Frictional white patches are common. Before a biopsy is arranged, the dental provider should eliminate the source of friction/trauma and watch the area for 2–6 weeks. Frictional white patches usually resolve or show significant resolution in a period of 2 weeks to three months. If the white patch persists beyond the six-week period, refer the patient for a biopsy. Frictional keratosis represents the epithelial response to chronic trauma such

as a sharp tooth, an ill-fitting denture or chronic cheek, tongue (Figure 8), or lip chewing. Clinically, it can affect any age with no gender predilection. It is commonly found in younger patients involving the lips, cheeks, and lateral tongue. On palpation, it ranges from smooth to rough, irregular, and leathery in consistency. Treatment includes removal of the irritating factor, relining of a denture if loose and cessation of mucosal chewing. If the white patch persists beyond six weeks, a small biopsy is indicated. Rebiopsy if it recurs.



**FIGURE 8**  
[Chronic tongue chewing presenting as a white patch on the lateral border of tongue in a 53-year-old female]

## SMOKELESS TOBACCO KERATOSIS (FIGURE 9)

Tobacco products are available in two forms: smoked or smokeless. The latter can come in the form of plug, chewing tobacco, or dry or moist snuff. Dry snuff can be inhaled or placed between the lip or cheek and the gingiva. Smoked tobacco is used in cigarettes, cigars, or pipes. Smokeless tobacco keratosis is the term for white plaques that form on the oral mucosa, usually on the vestibule, and the gingiva in the areas which habitually come into direct contact with tobacco in a smokeless tobacco user. These lesions are characterized by thickened and white mucosa that is typically wrinkled as depicted in Figure 9. This type of lesion takes between one to five years to develop depending on the total hours of daily use and the amount of use. The clinical presentations of these lesions go through stages; it usually presents as an ill-defined area of white and wrinkled thickening most commonly on the mandibular labial and buccal mucosal folds, but the early presentation can be less prominent and pink in color and nonetheless corrugated and rough in palpation. More advanced lesions may have an edematous look and are again wrinkled. These lesions may also have red patches, which may indicate a change to a more serious disease, though this is rare. In addition to the mucosal and gingival changes, the teeth may also demonstrate changes including gingival recession and caries. The latter depends on the sugar content of the smokeless tobacco.

The habit of smokeless tobacco use is more common in white blue-collar males with an age range of 9–30, mean of 18 years of age. Smokeless tobacco keratosis occurs in the area where tobacco is held. The histology ranges from benign to low-grade dysplasia. High-grade epithelial dysplasia and squamous cell carcinoma are described, but rarely. Given this information, it is suggested that smokeless tobacco is a safer alternative to smoked tobacco; as a result, some even believe that it can be used as an effective alternate in encouraging cigarette smoking cessation. This notion is supported by several studies. For example, studies from Sweden in Europe and West Virginia in the United States, where smokeless tobacco use is common (in Sweden 20% of the young population use it), show that these areas have comparable rates of oral cancer when compared to otherwise similar areas in which smokeless tobacco use is less common. This information indicates that smokeless tobacco use is not implicated in oral cancer occurrence. However, there is still an important body of evidence in the literature to suggest that smokeless tobacco is indeed a risk factor in oral cancer. In an alternative interpretation of the data from Sweden, the authors contend that the oral cancer occurrence rate among men in Sweden is higher than that in England, which notably has a lower rate of smokeless tobacco use and a higher rate of cigarette smoking among men.



**FIGURE 9**  
[Smokeless tobacco keratosis presenting as wrinkled white the left buccal mucosa of a 56-year-old male]

Of additional concern is smokeless tobacco's documented potential as a "gateway" to indubitably harmful smoked tobacco use. The Surgeon General of the United States has suggested that smokeless tobacco is not a safe alternative to cigarettes. This author believes that smokeless tobacco has low potential for carcinogenesis but does not advocate its use.

Treatment of smokeless tobacco keratosis includes prohibition of tobacco use of any type. The lesion may regress with discontinuation of tobacco use within two weeks up to three months. Excision with clean margins is indicated if there is evidence of dysplasia; complete excision is necessary if it appears in high-risk locations such as the floor of mouth or the ventral surface of tongue. Long-term follow up is indicated. Prognosis depends on the histology.

## LEUKOEDEMA (FIGURE 10)

Leukoedema is a common developmental condition that is believed to represent a variation of the normal mucosa. It is more evident in black patients, mostly because of the mucosal dark pigmentation exaggerating the milky color of this condition. It occurs most commonly in the oral cavity but can also affect other sites, including the vagina and the larynx. It is characterized by the accumulation of fluid within epithelial cells resulting in a soft texture and milky color. It usually presents as folded mucosa, mostly on the bilateral buccal mucosa and vestibule as depicted in Figure 10. Upon stretching, the wrinkles flatten and disappear, giving the clinician a

tool to differentiate this entity from other white oral lesions. As mentioned above, this lesion is more common in black patients, affecting as many as 94% of black adults and 50% of children. It is also described in 40% of Caucasians. It is exaggerated in heavy smokers but reverts to a less prominent appearance upon cessation of tobacco use. Histologically, the epithelium shows acanthosis with cellular edema of the spinous layer. Epithelial cells look swollen with pyknotic nuclei. The surface is usually covered by parakeratin. No treatment is indicated, and it has an excellent prognosis.



**FIGURE 10**

*[Leukoedema presenting as wrinkled white lesions on the bilateral buccal mucosa of a 27-year-old African American male. He reports having these lesions for as long as he can remember]*

## TRAUMATIC ULCER/TUGSE (FIGURE 11)

Traumatic ulcers are very common in the mouth. They usually affect the anterior and lateral tongue and are painful. They heal within two weeks. A persistent variant of traumatic ulcer is described and is known as traumatic ulcerative granuloma with stromal eosinophilia (TUGSE). This type of traumatic ulcer commonly occurs on the tongue in patients with a history of trauma. They are more common on the posterior lateral tongue and can be asymptomatic or painful. TUGSE can be mistaken for squamous cell carcinoma presenting as single deep ulcer with rolled border as depicted in Figure 11. TUGSE rarely occurs on the lips, floor of mouth or buccal

mucosa, but all these locations have been described. It may affect patients of all ages, including infants, but is more common in males around 40–50 years of age. TUGSE tends to occur more in males than females; at a ratio of 2:1. Histologically, these ulcers are deep lesions involving the underlying muscle, which may explain the process of slow healing and the tissue eosinophilia. Healing may take up to four months or even up to a year. They have a 12–30% recurrence rate. Recurring TUGSEs have been successfully treated with intralesional steroid injections.



**FIGURE 11**

*[TUGSE on the lateral border of tongue of a 48-year-old male]*

## SQUAMOUS CELL CARCINOMA (FIGURE 12)

Oral squamous cell carcinoma (SCC) is the most common oral malignant neoplasm accounting for up to 90% of all mouth malignancies. It is the sixth to ninth most common cancer worldwide. Globally, in 2018, 890,000 new cases and up to 450,000 deaths were reported in oral SCC patients. Last year, in the USA, over 54,000 cases of oral and oropharyngeal SCC were reported and over 11,000 died of the disease.

Tobacco and alcohol use remain the main etiology for oral SCC. Human papilloma virus (HPV) has a high prevalence in oral cancer; it has been on the incline for the last twenty years and is predicted to continue to rise. HPV-associated oral SCC affects the posterior mouth, more commonly involving the tonsillar and oropharyngeal areas, and is more common in younger white males with no significant history of tobacco use. Other etiologic factors associated with oral SCC include poor oral hygiene, syphilis, chronic candidiasis, iron and other dietary deficiencies, and lichen planus—especially persistent erosive lichen planus. The focus of this narrative is on tobacco-associated oral SCC (hereinafter tobacco SCC).

Tobacco SCC is a malignancy described in patients with a history of chronic cigarette smoking of twenty cigarettes

or more per day for an average of twenty years. Tobacco SCC is an aggressive neoplasm that currently accounts for an estimated 75% of all oral SCCs. They occur predominantly in males over the age of 40 years, with an observed male to female ratio of 2:1 worldwide and 1.4:1 in the USA. The most common oral sites afflicted with this type of SCC (in decreasing order) are ventral and lateral surfaces of tongue (25–50%), floor of mouth (15%), gingiva (12%) and soft palate (9%). The buccal mucosa and retromolar pad areas (3%) have a relatively low incidence of occurrence unless the patient is a chronic smokeless tobacco user.

Tobacco SCC varies in presentation from a deceptively innocent-looking white lesion to obviously malignant. In about 50% of cases, it presents as a non-healing ulcer; in about 75% of cases, it presents as a mixed red and white lesion, or mixed as depicted in Figure 12. Characteristic signs of tobacco SCC include a non-healing ulcer with rolled borders. The tongue is the most common site for oral SCC, where it usually affects the lateral and ventral surfaces. The dorsal surface of tongue is very rarely involved. Usually, tobacco SCC of the posterior tongue is more aggressive than that of the anterior tongue. Around 78% of base of tongue SCCs show early metastasis, especially to regional lymph nodes; in



**FIGURE 12**

*[Squamous cell carcinoma on the posterior lateral border of tongue of a 78-year-old female]*

this group about 69% of tongue SCC show evidence of metastasis at admission.

Despite the sophisticated developments in cancer diagnosis and treatment, the five-year survival rate of tobacco SCC has, disappointingly, only slightly improved since the 1950s. It is around 60%, and is less favorable in males, especially black males. Determination of the prognosis of oral SCC is based on the clinical stage and histology classification. Although oral SCC is a diagnosis made by histology, surgeons tend to depend exclusively on the TNM classification system for clinical staging and treatment decisions. Prognosis is more dependent on the TNM staging system. ♦

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BY DR. TIMOTHY HESS MAGD, LLSR



Dr. Hess is a graduate of the University of Alberta and completed his DDS degree from the University of Washington in 1994. He is an Affiliate Assistant Professor Restorative Dentistry, Affiliate Assistant Professor Oral Medicine and the Director of the Tucker Institute at the UW School of Dentistry. He is Director of Education Washington Academy of General Dentistry Global Learning Center. Dr. Hess currently lectures on implant failures due to restorative techniques, operative techniques, zirconia restorations as well as facial aesthetics including the topics of Botulinum toxin and dermal fillers.

Dr. Hess has been published in the Journal of Prosthetic Dentistry, IJOMI, CJRDP, Decisions in Dentistry and Operative Dentistry. He has presented at the ADA Annual Meeting, the AGD Annual Meeting, Pacific Northwest Dental Conference, International Academy of Gnathology, Pacific Coast Society of Prosthodontics and the Canadian Academy of Restorative Dentistry and Prosthodontics.

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The WashingtonAGD has for years offered our MasterTrack program. This curriculum is the brainchild of Dr. Gary Heyamoto and has been orchestrated by our Executive Director, Valerie Bartoli. This program is our most popular CE offering and thrived even during COVID. As Director of Education, we continue to craft the MasterTrack to guide participants to Fellowship and then Mastership in the Academy of General Dentistry in as little as 5 years.

The WashingtonAGD MasterTrack at our Global Learning Center in Sea-Tac, WA offers one of the best values in dental CE. Participants receive a minimum of 24 Hrs. of CE over 4 weekends in the months of September, November, January, and April. However, attendees may also receive participation CE credits for doing 15-20-minute case presentations at each session. Hard to achieve participation credits in some AGD subject codes can be obtained with the carefully selected 5-year curriculum and through case presentations. Tuition for AGD Members is \$5,600 until June 1st, 2023, then \$7,100 after. For our Non-AGD doctors, tuition is \$6,900 and goes up to \$7,900 after June 1st, 2023.

We are pleased to announce our 2023-2024 MasterTrack lineup. We start in September with Ms. Tija Hunter (Learn, Leverage, And Lead!), Dr. Leroy Horton (Strategies For Success In Extraction And Ridge Preservation & Platelet Rich Fibrin – Maximize Grafting Results And Wound Healing), and Drs. Bäumer & Karbaksch (Functional & Aesthetic Crown Lengthening Techniques). November features Drs. Fling and Talmadge (Revolution in Provisional Fabrication And Alteration Of Permanent Restorations) and Drs. Sulaiman, Abdulmajeed, & Hess (CAD/CAM Restorations: Preparation, Design, Fabrication, & Cementation). January's program includes Dr. Michael Silverman (Science of Sedation Dentistry), Dr. Timothy Kosinski (Using a Diode Laser Every Day in Your Practice: A Clinical Approach), and Dr. Carla Cohn (Practical Pediatric Dentistry for The General Practitioner). Finally in April, our Pankey Speaker for two days is Dr. Lee Ann Brady (Aesthetic & Functional Treatment Planning) and Dr. Hai Zhang (Removable Partial Dentures: Analog to Digital).

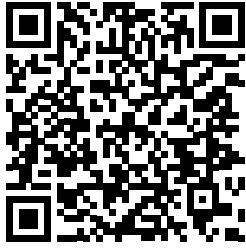
The 2023-2024 MasterTrack is especially an excellent environment for both, young and seasoned dentists to expand their skillset and experience the mentorship of some of the best instructors in dentistry on a wide variety of topics. We strongly encourage our AGD Fellows and Masters to refer colleagues, whether new or experienced to this exciting program. ♦

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**7**  
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**SAT** **20**  
**SUN** Treatment Planning, Restorative, & Surgical Approaches  
**31**  
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**30**  
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**FRI** June 9 - 11, 2023 @ 8:00 am - 5:00 pm  
**9** **COMPLICATIONS IN IMPLANT DENTISTRY – MODULE 10 CLINICAL IMPLANTOLOGY A-Z PROGRAM**  
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**SUN** Surgical & Restorative Challenges in Both Early & Delayed Stages  
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# Linda J. Edgar

DDS, MEd, MAGD, LLSR

## Elected 2022 ADA President Elect

BY DR. LINDA EDGAR



I have been asked to write my story for the WAGD News.

I was a Junior High and High school teacher for 15 years before I became a dentist. I finished over 45 marathons, qualified for the 1984 Olympic Trials, finished 2 Ironman Triathlon races and set the world record in the 50K in 1982.

My athletic journey with its ups and downs taught me to remove the words CAN'T and IMPOSSIBLE from my vocabulary and believe that ANYTHING is possible with enough grit, passion, drive, and enough work and determination.

It is my belief that Integrity, Honesty, Respect and Kindness are paramount in our leaders.

I practiced General Dentistry with my husband Bryan for 30 years serving in various dental organizations that entire time. I have been a leader at the National level for 12 years including VP, PE President and Past President of the National Academy of General Dentistry from 2011-2015 and ADA Trustee from 2018-2022.



**My story:** I was born in San Diego, California into a Coast Guard family and lived in 9 different places including Puerto Rico and the Philippines before I graduated from high school in San Diego. My dad was a rescue pilot and ended his career as an Admiral in charge of the eastern seaboard from Virginia down to Florida. My Mom and Dad taught me honesty and integrity and lived a life to serve and protect.

Dr. Bryan Edgar, my husband, and I have been married for 49 years. He just finished his 6th year as Speaker of the House for AGD National. He has been Washington State ADA president on many ADA councils and chairs Washington's Investment and Regulatory Committees. We met in high school and were married young. I had just graduated from the University of Washington with a pre-med and teaching degree. Our plan was I would help put him through dental school as a teacher and I would go to medical school to become an OBGYN after he finished his dental residency.

Life happens, however, while we are busy making other plans and during Bryan's senior year and first year of residency I had 2 ruptured tubal pregnancies at age 24 and nearly died twice in 11 months from internal bleeding. .... being an OBGYN was not for me anymore. Three months later--A young girl walked into the hospital and announced that she wanted to give up her baby. Bryan and I adopted my son 3 weeks later. That little baby is now 6'7" and an Alaskan Airline 737 pilot.

**Miracles do happen!** When my son was 10 and I had crashed in an Ironman race... Bryan saw an opening to pick up an application to the University of Washington Dental School for me.... That is when my life as a leader began. It wasn't because I set out to be a leader --it was because I had people in my life like Bryan and many of you who have lifted me up- and said "YOU CAN do this!"

I graduated from Dental School in 1992 and served as class Secretary. I joined the WAGD Board my senior year and brought free CE courses to my senior class. I continued on that board starting a Fellowship and Mastership Study club my first year out of school and worked on increasing membership with our new Executive Director Val Bartoli, who just received her Honorary AGD Membership last year.

My husband and I were chairs of the UW 22 million dollar campaign in 2000-2008. I served as AGD Trustee from 2005-2007 and AGD Secretary for two terms from 2007-2011 at the same time as I was President of Seattle King County Dental Society President. I was elected to be the 2nd women President of AGD in 60 years in 2011-2015. During this time we started endowments at the UW for high Tech Dentistry and Digital Photography. Seattle King County Dental Society started an ER diversion clinic in Swedish Hospital and did dental treatment for kidney patients waiting for a transplant.

In the last 7 years Val and the WAGD Board have completed a 10 chair dental clinic that both teaches our dentists CE and treats those in need at the same time. Gary Heyamoto DDS, MAGD has also taken the AGD Foundation to the next level by creating Oral Cancer Education programs.

I have always felt that getting my Mastership and Fellowship has made me a better and more diverse dentist. It is also VERY important to me to encourage all dentists to be members of both ADA and their own specialty organization like AGD for General Dentists. Collaborations with all dental groups can only make us stronger. It may be the "teacher in me" but nothing makes me happier than helping a new young leader shine or encouraging them to get back up and try again after a loss. We must connect with our members- listen and act quickly on their needs to help them be more successful.

**Wearing "2 ADA and AGD Hats" is very important to me.** I have been encouraged to run for ADA President Elect in 2022 and appreciate the support I have had from so many of you to "climb this mountain".

**Linda Edgar was elected ADA President Elect in October 2022 and will serve as the 5th women president for ADA in 160 years starting in October 2023.** ♦

# Top Ten Reasons to join the Washington AGD

BY DR. THERON A. MANSON FAGD



Dr. Theron Manson was raised in British Columbia but now calls Seattle his home. He received his Doctor of Dental Surgery from the University of Washington. He and his wife Connie have two boys, and enjoy skiing, hiking, and traveling together.

When he isn't at work, Dr. Theron Manson also enjoys coaching his sons' athletic activities.

To stay abreast of the latest patient care techniques, Dr. Theron Manson completes as many as 200 hours of continuing education per year.

He has many areas of interest including sleep dentistry (for individuals with sleep apnea), Invisalign braces, and other orthodontic therapies.

1. **OUTSTANDING CONTINUING EDUCATION OPPORTUNITIES.** (see list below).
2. **CAMARADERIE.**  
There is no better place to meet highly motivated dentists, who are eager to learn and share their knowledge.
3. **THE WA AGD AND THE AGD.**  
Work locally and nationally to improve the ability of general dentists to provide outstanding patient care.
4. **EXCLUSIVE TO GENERAL DENTISTS.**  
The AGD is the only dental organization for general dentists only.
5. **FELLOWSHIP.**  
Only 6% of general dentists gain Fellowship in the AGD. Set yourself apart and become a better clinician while doing it!
6. **MASTERSHIP.**  
Only 2% of general dentists gain Mastership. Shoot for the next level!
7. **GAIN KNOWLEDGE.**  
Lower stress, and increase profitability while improving patient care in the process.
8. **HELP IMPROVE HEALTH.**  
Improve public health through the AGD Foundation, which focuses on oral cancer awareness and training.
9. **AFFORDABILITY.**  
Both membership and CE are kept at a very reasonable rate, so that all dentists, whether students, new grads, retirees, or anyone in between, can participate.
10. **FUN.**  
It is rewarding and enjoyable to have a goal and pursue it with other like-minded colleagues.

## UPCOMING EVENTS

- **CLINICAL IMPLANTOLOGY TRACK**  
(1 year with 10 sessions of hands-on and live surgery earning 300 hours of CE and a certificate)
- **MASTERTRACK**  
(a diverse selection of hands-on and lecture courses for those pursuing Fellowship, Mastership, and knowledge in general)
- **ORTHO PROGRAM**  
(a comprehensive clinical orthodontic program treating live patients)
- **MANY OTHER OPTIONS AT**  
[washingtonagd.org/continuing-education/](http://washingtonagd.org/continuing-education/)

## BY ISABELLE HWANG



At the first-year “Meet and Greet” social at UW School of Dentistry, I remember feeling really overwhelmed. All my fellow dental students seemed so talented, excited, and smart. In contrast, I felt like an imposter. Could I really survive through dental school? What made me think that I could really succeed as a dentist? Being a second-generation immigrant, English wasn’t my first language and I still felt clueless about mainstream American culture. To top it off, I was an introvert. Had I entered the wrong profession?

Feeling discouraged, I decided to leave the social early. Before I left the event, my upperclassman Clark Julian mentioned to me in passing that there was this club, and that they were hosting a mentorship event for students later in the month. I remember writing down the event on my phone, thinking to myself that I probably wouldn’t attend it.

Fast forward a few months, not only did I attend the AGD Mentorship Match Program, but I learned about the Academy of General Dentistry through Dr. Timmy Hess, Dr. James Newman, and other club leadership. However, being busy with medical didactic lectures and waxing-up for dental anatomy classes, I largely forgot about the club. When the COVID-19 pandemic hit, everything went virtual and the AGD was the last thing on my mind. It was a chaotic time, with everyone trying to figure out Zoom lectures and virtual exams under the backdrop of quarantining at home and doom scrolling the news.

By the time I entered my third year, I felt even more anxious than when I had first began dental school. In addition to feeling awkward around my classmates who I hadn’t seen in months, I was suddenly expected to dive right back into prosthodontic projects? What was I going to do? I decided to attend a few lectures from the Graduate Prosthodontic Lecture Series hosted by the UWSOD AGD Student Chapter. Not only did this experience help me in my prosthodontics class, but it also created a low-key environment where I felt comfortable asking for help and advice. From there, I reconnected with my classmates and some of us decided to attend a Crown Preparation 101 course at the WA AGD Global Learning Center. One of my research-oriented friends, seeing a presentation opportunity at the WA AGD, decided to participate in the Howard Competition 2021. Later that year, I decided to go with them to the AGD 2021

Scientific Session. At Austin, I learned even more about organized dentistry, listened to lectures, and made friends with dental students across the nation.

As I got more involved with club activities, I decided to apply to be the UWSOD AGD Student Chapter President for that school year. Astonishingly, my application was accepted. This leadership opportunity helped me develop communication skills and conquer my life-long fear of public speaking. It also gave me the opportunity to participate in other local dental societies such as the Seattle King County Dental Society (SKCDS). I even had the honor of meeting rock stars like Dr. Dzon Nguyen, Dr. Herbert Edwards, and Dr. Linda Edgar.

As I transition to becoming a fourth-year dental student and pass the leadership baton to a third-year student, I think back on my dental school experience. If the “Meet and Greet” social resumes at the UWSOD this year, I would love to meet all the incoming students and encourage them to attend a few AGD events. In addition to providing learning, research, and networking opportunities, the most important thing that the AGD provides to dental students is a supportive community of dentist mentors and dental students that can encourage and teach the future generation of dentistry. Though dental school is challenging, the dental school experience becomes convivial and more successful with the support of the AGD community. ♦

## BY DANIEL HOVANDER



As an incoming dental student, I remember feeling the need to learn as much as possible while in school. I was fortunate enough to have been introduced to the AGD, which enabled me to practice and grow my dental skills outside of the classroom through programs like the crown preparation 101 course. Without being

exposed to a clinic setting yet, the step by step lesson taught by Dr. Hess helped bridge gaps in my knowledge when preparing and seating a crown in the clinic for the upcoming year. Furthermore, the AGD has provided me a platform to present research through the Howard competition. This is a student-based research competition that requires a 10-15 minute presentation, after which the audience provides feedback to the presenter. This was incredibly valuable, because I received written feedback on how to improve powerpoint slides, talking speed, and clinical information for future presentations. In fact, I implemented a majority of the recommendations to my presentation prior to the International Association for Dental Research (IADR) conference.

The Washington AGD has also provided students with an excellent networking

opportunity through social events, and lectures (Grad prosth lecture series). There is limited time to interact with first and second year dental students due to the lack of clinical time, however the Washington AGD provides a positive networking environment through their thoroughly planned social events. I had the pleasure of meeting numerous individuals at the social event last spring, and I would not have this opportunity without Washington AGD.

The best part about being an AGD member is that there is valuable information for everyone. Whether your interests include furthering your knowledge through lectures (e.g. Grad prosth lecture series), honing your clinical skills at hands-on courses, or presenting your research, the AGD will support you while providing critical resources to be the best possible student and practitioner. ♦

WASHINGTON AGD & UWSOD PROUDLY PRESENTS

# Esthetic Rehabilitations - From 10 units up

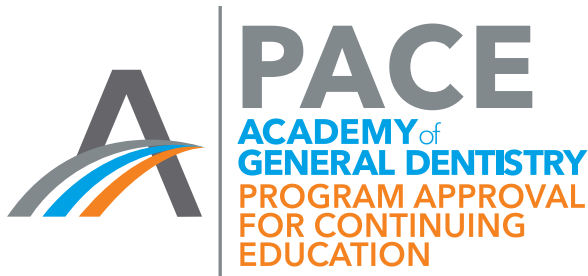
FRIDAY OCTOBER 13 | 9AM



WITH PREMIER SPEAKER:  
DR. GERARD CHICHE



WASHINGTON AGD | 19415 INTERNATIONAL BLVD | SEATAC, WA



## INFORMATION

Washington AGD, PACE Division  
19415 International Blvd, Suite #410  
SeaTac, WA 98188  
Office: 206-212-4969  
info@washingtonagd.org  
www.agd.org/education/learn/pace

## GET THE APPLICATION

Go to [www.agd.org](http://www.agd.org) Click on the Education tab and then PACE Apply/Renew Tab to get the application.



The Academy of General Dentistry (AGD) Program Approval for Continuing Education (PACE) was created to assist members of the AGD and the dental profession in identifying and participating in quality continuing dental education (CDE). PACE approves program provider organizations, not speakers or specific courses. The program provider approval mechanism is an evaluation for the educational processes used in designing, planning, and implementing CE. Approval by the AGD does not imply endorsement of course content, products, or therapies presented, nor does this approval imply that a state or provincial board of dentistry will accept courses. Approved program providers are expected to comply with all relevant state and federal laws. CE offered by approved program providers will be accepted by the AGD for Fellowship/Mastership credit.



# 2023 AGD Membership Application

Join online at agd.org, or call us at 888.243.3368 or 312.440.4300.

PROMOTIONAL CODE:

## REFERRAL INFORMATION

If you were referred to the AGD by a current member, please note his or her information below:

Member's name

City, state/province, or U.S. Federal Services branch

## MEMBER INFORMATION

First name \_\_\_\_\_ MI \_\_\_\_\_ Last name \_\_\_\_\_ Designation (e.g. DDS, DMD, BDS) \_\_\_\_\_ Primary Email address \_\_\_\_\_

Do you currently hold a valid U.S./Canadian dental license?  No  Yes: \_\_\_\_\_  
License number \_\_\_\_\_ State/province \_\_\_\_\_ Date renewed (mm/yyyy) \_\_\_\_\_

Type of membership: (Check one.)  Active general dentist  Associate (dental specialist)  Resident  Dental student  Affiliate

If you are not in general practice, please indicate your specialty: \_\_\_\_\_

Current dental practice environment: (Check one.)  Solo  Associateship  Group practice  Hospital  Resident  Corporate

Other \_\_\_\_\_  Full-Time Faculty \_\_\_\_\_  Federal Services \_\_\_\_\_  
Please indicate institution \_\_\_\_\_ Please indicate branch \_\_\_\_\_

## CONTACT INFORMATION

Preferred billing/mailling address:  Business  Home

Your AGD constituent is determined by your business address, unless one is not available.

Business address \_\_\_\_\_ City \_\_\_\_\_ State/province \_\_\_\_\_ ZIP/postal code \_\_\_\_\_

Name of business (if applicable) \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_

Home address \_\_\_\_\_ City \_\_\_\_\_ State/province \_\_\_\_\_ ZIP/postal code \_\_\_\_\_  
Date of Birth \_\_\_\_\_

Phone \_\_\_\_\_ Cell phone \_\_\_\_\_ Alternate email \_\_\_\_\_

## EDUCATIONAL INFORMATION

Are you a graduate of an accredited\* U.S./Canadian dental school?  Yes  No  Currently enrolled

Dental school \_\_\_\_\_ State/province \_\_\_\_\_ Country \_\_\_\_\_ Date of graduation (mm/yyyy) \_\_\_\_\_

Are you a graduate of (or resident in) an accredited\*\* U.S. or Canadian postdoctoral program?  
 Yes  No  Currently enrolled Type:  AEGD  GPR  Other

\*Official accreditation is given by CODA in the U.S. and CDAC for all Canadian provinces. \*\*Accredited dental residencies qualify for the resident membership rate. Official proof of enrollment must be provided to AGD.

Postdoctoral institution \_\_\_\_\_ State/province \_\_\_\_\_ Country \_\_\_\_\_ Start date (mm/dd/yyyy) \_\_\_\_\_ End date (mm/dd/yyyy) \_\_\_\_\_

## OPTIONAL INFORMATION

Gender:  Male  Female  Prefer not to disclose  Not listed  
Ethnicity:  American Indian  Asian  African-American  Hispanic  Caucasian  Other

## DUES INFORMATION

Please check membership type applying for to determine Headquarter dues::

	U.S./ International	Canada (in U.S. dollars)	Puerto Rico
<input type="checkbox"/> Active General Dentist	\$441	\$416	\$393
<input type="checkbox"/> Associate	441	416	393
<input type="checkbox"/> Affiliate	221	208	197
<input type="checkbox"/> Resident	21	21	21
<input type="checkbox"/> 2022 Graduate	88	83	79
<input type="checkbox"/> 2021 Graduate	176	166	157
<input type="checkbox"/> 2020 Graduate	265	250	236
<input type="checkbox"/> 2019 Graduate	353	333	314
<input type="checkbox"/> Dental Student	21	21	21

1. AGD Dues: \_\_\_\_\_ \$ \_\_\_\_\_

Upgrade to Premium Plus Membership\* (Add \$150 USD) \$ \_\_\_\_\_

2. AGD Constituent Dues: \_\_\_\_\_ \$ \_\_\_\_\_

3. AGD Component Dues: \_\_\_\_\_ \$ \_\_\_\_\_

Please refer to back side for constituent and component dues.

Total Amount Enclosed: \_\_\_\_\_ \$ \_\_\_\_\_

Dues rates effective through September 30, 2023

I hereby certify that all of the above information is correct, and that by signing this application, I agree to all terms of membership including completion of 75 hours of continuing education every three years for active general dentist and associate members.

Signature

Date

**Note: Check payment is required with hard copy applications. To pay with credit card, please apply online at agd.org/membership. If you have any questions, please contact our Membership Services Center at 888.243.3368.**

**Please sign this application and submit payment to:**  
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PO BOX 4451  
CAROL STREAM, IL 60197-4451

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STARTING SEPTEMBER 14, 2023

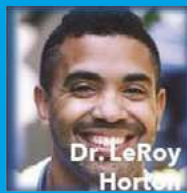


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WASHINGTON  
ACADEMY of  
GENERAL DENTISTRY

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