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Osseointegration
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Academy NEWS

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On to San Diego - Innovation Frontiers



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Where Does AO Fit?

By: AO Fellow and Diplomate Joseph Fiorellini, DMD, DMSc

Over the past half-century, implant dentistry has evolved from an emerging concept practiced by a limited number of pioneers into an everyday treatment modality that has transformed the lives of millions of patients around the world. What was once considered innovative and experimental is now an expected part of comprehensive patient care. The predictability, science, and clinical success of implant therapy have elevated it from a specialized procedure to a standard treatment option across nearly every discipline of dentistry. As the profession has evolved, so too has the way clinicians are educated. Decades ago, many practitioners learned implant dentistry through short courses and continuing education programs after completing their formal dental training. Today, implant dentistry is increasingly integrated into dental school curricula at both the predoctoral and graduate levels. Students and residents now enter practice with a greater foundational understanding of implant therapy than any generation before them. This evolution represents a tremendous achievement for our profession and reflects the maturation of implant dentistry as a discipline.

Throughout this remarkable journey, the Academy of Osseointegration has played a pivotal role in shaping the future of implant dentistry. AO has consistently served as the scientific and educational leader in our field by fostering evidence-based education, promoting rigorous research, and bringing together clinicians, educators, researchers, and industry partners to advance patient care. The Academy has never simply followed trends - it has helped create them. Through consensus conferences, groundbreaking scientific publications, world-class educational programming, and an unwavering commitment to excellence, AO has established itself as the trusted voice of implant dentistry.

Yet, as we celebrate our history, we must also recognize that the landscape around us is changing at an unprecedented pace.

The ways in which professionals consume information have transformed dramatically. Educational content is now delivered through digital platforms, webinars, podcasts, social media, and on-demand learning environments that allow clinicians to access information anytime and anywhere. At the same time, patients are becoming increasingly informed, connected, and demanding. They expect not only excellent clinical outcomes but also transparency, convenience, and treatment experiences tailored to their individual needs. New technologies, digital workflows, artificial intelligence, and rapidly evolving treatment

concepts continue to reshape how we practice dentistry.

These changes present both challenges and opportunities. While information has never been more accessible, distinguishing evidence-based knowledge from opinion has never been more important. As educational options multiply, the need for trusted, scientifically grounded leadership becomes increasingly critical.

This brings us to an important question: Where does AO fit?

The answer is simple: AO must continue to lead.

Now more than ever, the Academy's role is not merely to provide education but to serve as the authoritative resource that helps clinicians navigate an increasingly complex professional environment. AO must continue to define standards, promote scientific rigor, support innovation, and create meaningful opportunities for collaboration among

all members of the implant community. We must remain committed to developing the next generation of leaders while supporting experienced clinicians as they adapt to new technologies and changing patient expectations.

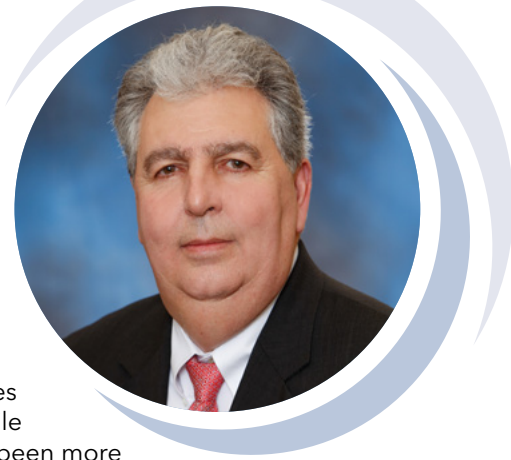
The future of implant dentistry will not be defined solely by technological advances or new treatment modalities. It will be defined by our ability to ensure that innovation remains grounded in science and focused on improving patient care. That responsibility belongs to all of us, but it begins with organizations willing to lead.

For more than five decades, AO has been at the forefront of implant dentistry. The profession, education, and patient expectations are changing. Yet our mission remains unchanged: to advance the science and practice of implant dentistry through education, research, and collaboration.

As we look ahead, I am confident that the Academy of Osseointegration will continue to serve as the guiding force that brings together the brightest minds, the strongest evidence, and the shared commitment necessary to shape the future of our profession.

The question is not where AO fits.

The question is how far AO will lead us next.



Why Before How: Person-centered Care in the Age of Artificial Intelligence

By: Bunmi Tokede, DDS, MPH, DMSc

At the 2026 AO Annual Meeting, much of the conversation around artificial intelligence focused on what these tools can do. That is understandable. The pace of change is real, and the possibilities are impressive.

But in implant dentistry, the first question is not what AI can do. ***It is why.***

Why this diagnosis? Why this treatment plan? Why this trade-off for this patient?

Healthcare is navigating a crisis of complexity.¹ The volume of medical and dental knowledge is expanding faster than any clinician can reasonably process, while our time and attention remain fixed. In that environment, AI will likely become an important tool for retrieving information, organizing clinical context and standardizing routine tasks. Used well, it can help us see more clearly.

Used poorly, it can simply help us move faster.

That distinction matters. Our training and compensation systems already reward the “how” of care: procedures, production, speed and throughput. If we introduce AI mainly as an engine for efficiency, we should expect a predictable result. We will accelerate care delivery without necessarily improving the quality of clinical judgment behind it.

For implant clinicians, the “why” is not a philosophical extra. It is the foundation of care. It is the reasoning that comes before intervention: what we believe to be true about the diagnosis and prognosis, what evidence might change our minds and what matters most to the person in the chair.

Confidence Is Not the Same as Accuracy

One reason this matters so much is that clinicians are not always well calibrated to their own diagnostic accuracy. Studies have shown that physicians’ confidence does not reliably rise and fall with actual correctness or with difficulty. In more complex cases, accuracy may decline without a corresponding drop in confidence.²

That should give all of us pause.

When we introduce modern AI into this dynamic – i.e., systems that are inherently fluent, persuasive

and outwardly confident – the risks compound. The combination of human overconfidence and machine fluency makes it dangerously easy to act decisively on a clinical narrative simply because it feels coherent rather than because it is rigorously supported. The solution is not to become more certain. It is to become more disciplined about how certainty is earned.

AI should help us see better, not simply decide faster.

Not All Clinical Variation Is Bad

One of the most difficult realities in healthcare is that different clinicians may recommend different paths for the same patient.

From the patient’s perspective, those differences can easily look like inconsistency or incompetence. But not all variation means the same thing.

Some variation is unwarranted. It reflects diagnostic noise: missing data, incomplete records, inconsistent documentation, unstable disease labels or poor information transfer. That kind of variation creates avoidable harm and should be reduced.³

Some variation is warranted. It reflects the fact that patients value different things.

One patient may prioritize fewer visits. Another may prioritize lower cost. Another may prefer the least invasive option, even if it brings compromises in durability or maintenance. Another may accept a higher burden to maximize long-term stability. Those are not failures of the system. They are the essence of person-centered care.

AI will predictably affect both. While it can reduce noise by retrieving missing context and standardizing evaluations, it also threatens to flatten warranted variation. Without deliberate design, AI will mathematically push diverse patient needs toward a single “optimal” plan, particularly when the system’s underlying objective function remains implicit.





Fig. 1: AI safety check

Three AI Challenges to Anticipate

To prevent this flattening and preserve the space for individualized care, our integration of AI must carefully navigate three pertinent challenges:

1 Data Mismatch (Representation and Dataset Shift): Algorithms inherit the world in which they were trained, and datasets do not travel seamlessly. Differences in imaging devices, acquisition protocols, documentation habits, and patient demographics can severely degrade a model's performance outside its original setting.⁴ Even populations that look similar structurally (demographics, education level, etc.) can be very different culturally. Clinicians must be mindful of these potential differences when applying model suggestions to all patient types. A heuristic that can help mitigate the concern of overgeneralization is shown in Figure 1.

2 Objective Mismatch (The "Missing Value"): AI models optimize mathematical metrics, but patients live inside complex human values. As Kohane and Manrai note, medical AI can be "perfectly right" regarding a specific metric while entirely misaligned with what the patient cares about.⁵ The antidote is to make the model's objective explicitly clear: we must label what is being optimized (e.g., durability, success rates, low burden, cost efficiency) and clearly state what is being traded away to achieve it.

3 Cognitive Mismatch (Automation Bias and Drift): There is a common assumption that combining a human with AI will automatically produce a better decision. That is not always true. In fact, recent evidence suggests that human-AI combinations can underperform the best human or the best AI acting alone, especially in decision-making tasks.⁶ The mechanism here is a familiar one: automation bias, or over-reliance on an authoritative-seeming tool, especially under the pressure of a busy clinic.

What Good Use Looks Like

AI has real potential in implant care. It can help us retrieve information, reduce inconsistency, and create more reliable systems. Those are meaningful advances.

But for AI to earn its place in dentistry, it must do more than impress us. It has to help secure diagnostic truth, clarify tradeoffs, and preserve room for individualized care. It has to support decisions that are biologically sound, evidence-based, and aligned with the goals of the person sitting in the chair.

That means the clinician's role does not become less important. It becomes more important.

Our task is not to resist new tools, nor is it to surrender judgment to them. Our task is to make sure these tools serve the right end. In implant dentistry, the "why" must remain primary: why this diagnosis, why this intervention, and why this plan for this patient.

AI is fully capable of thinking without caring. Our responsibility is to make sure that, in adopting these tools, we do not learn to care without thinking.

References for this article are available by scanning this QR code.



Dr. Bunmi Tokede

Unforgiving Anatomy of the Socket Site: Are You Seeing What Matters?

Report from the Academy of Osseointegration 2026 Annual Meeting

By: Mauricio Araujo, DDS, MSc, PhD



During the Academy of Osseointegration 2026 Annual Meeting in Washington, DC, I presented an analysis of the biological and anatomical factors that govern tissue changes following tooth extraction and their implications for implant therapy. The presentation emphasized that post-extraction remodeling should be regarded as a biologically driven

process, the extent and pattern of which are largely dictated by the anatomical characteristics of the alveolar socket.

The healing process at the extraction site follows a well-established sequence, beginning with clot formation, progressing to the development of a provisional matrix, and culminating in new bone formation and maturation. However, these biological events inevitably result in a reduction of ridge dimensions due to the processes of bone modeling and remodeling. Consequently, even when an implant is placed immediately after tooth extraction in an ideal three-dimensional position, clinicians must recognize that the healed alveolar ridge will be diminished. This reduction can ultimately lead to esthetic challenges that must be addressed during treatment planning.

The presentation highlighted that these dimensional changes are not uniform across clinical scenarios. Instead, they are modulated by site-specific anatomical variables that have a marked effect on wound stability, the availability of bone cells, and blood supply. Among these variables, the thickness of the buccal bone wall appears to be particularly influential. Sites characterized by a thin buccal plate experience early buccal bone loss, which disturbs wound stability and leads to more pronounced horizontal contraction. In addition, the number and integrity of the socket walls, as well as the position of the tooth within the alveolar process relative to the basal bone, were identified as relevant determinants of healing outcomes.

These considerations have direct consequences for implant treatment planning. Although immediate implant placement has been proposed as a means of preserving ridge dimensions, available evidence indicates that it does not arrest the underlying remodeling process. As such, the decision to place implants immediately or to adopt a staged approach should be based on a careful assessment of the anatomical features of the extraction site rather than on timing alone.

Within this context, alveolar ridge preservation procedures were discussed as a strategy to mitigate, but not eliminate, post-extraction dimensional changes. By stabilizing the wound and compensating for buccal bone wall loss, the use of graft materials and barrier membranes may reduce the extent of ridge contraction. The effectiveness of these interventions, however, is closely linked to appropriate case selection and an accurate understanding of defect morphology.

The data presented, supported by both experimental observations and clinical examples, reinforce the concept that post-extraction tissue changes follow predictable biological patterns. Rather than attempting to prevent these processes entirely, clinicians should aim to anticipate them and incorporate this knowledge into treatment planning.

In conclusion, the lecture underscored the importance of a thorough anatomical evaluation of the extraction site as a foundation for decision-making in implant therapy. A biologically oriented approach to socket management remains essential for achieving stable and predictable outcomes, particularly in situations where esthetic demands are high.



Figures: Top A; bottom B
Two clinical cases exemplify the impact of gap and socket anatomy on alveolar ridge preservation following immediate implant placement. In case (a), a wide buccal gap (≥ 2 mm) was grafted at a site with a thick buccal wall. In case (b), the grafted gap was narrow (≤ 2 mm) and the buccal socket wall was thin. Both cases received a connective tissue graft (CTG) at the buccal aspect of the implants. Clinical and CBCT scans were obtained after 2 years of function. Notably, in the wide gap case, the ridge was successfully preserved, whereas a substantial reduction was observed in the narrow gap group.



Managing the Gap With Immediate Implant Placement: Myths Versus Realities of Treatment

By: Dennis Tarnow, DDS

The placement of immediate implants has opened multiple discussions about how to manage the gap that may exist between the implant and the facial plate of bone. Some of the questions that should be addressed are as follows: Does the size of the gap make a difference in wound healing? Should a graft be placed into the gap? What graft material should be used? What is histologically present against the implant after healing? Does the graft change the outcome, or does it only act as a filler to maintain space and ridge shape? Should the graft be covered with a custom abutment or a provisional?

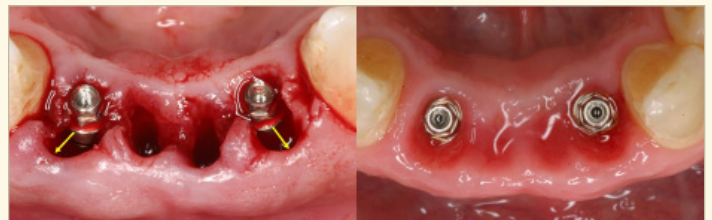
1. Does the size of the gap make a difference in the wound healing?

This question emerged years ago as one of the key reasons many clinicians avoided placing implants into immediate extraction sockets. Animal studies showed that if the gap exceeded 1.5 mm, fibrous tissue could form against the facial aspect of the implant. However, closer review of those studies revealed a design flaw: after creating gaps of varying sizes, researchers achieved primary flap closure without placing a membrane (Ref. 1).

This allowed fibrous tissue from the inner flap to grow down along the implant before bone cells from adjacent

walls could migrate and attach. Today, this concern has diminished because immediate implant placement into a fresh socket typically does not involve flap coverage. In fact, it is preferable not to elevate a flap at all.

This approach keeps epithelium and connective tissue away from the implant and allows time for bone to migrate to the exposed implant threads before soft tissue closes over the defect. Thus, contrary to earlier beliefs, the size of the gap does not matter (Ref. 2). It can be any distance, provided the socket heals by secondary intention rather than primary flap closure.



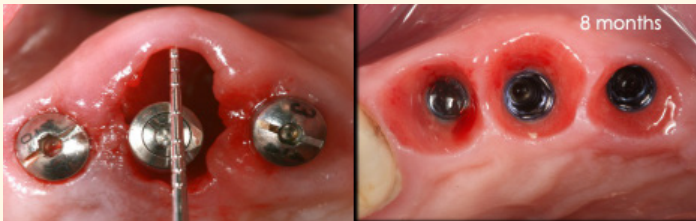
Notice that the space is larger than 2mm yet the healing went perfectly, even without a graft in the socket. Only a provisional was placed to keep the tissue shape. There

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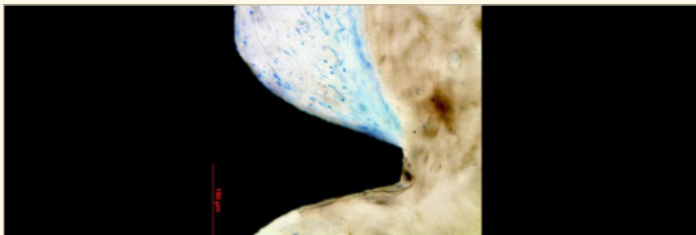
was no probeable pocket depth where the gap was previously present.



Final case in place along with radiographs (Restoration by Richard Smith)



In this case, notice that there was a gap of 4.2 mm. Thanks to a gift from the patient, we were able to look at this histologically and show that the bone filled right up to the first thread as it would even if there was no gap present. This verifies the biological concept that gap size does NOT matter as long as there is no flap pulled over the gap. (Ref 2)



2. Should a graft be placed into the gap?

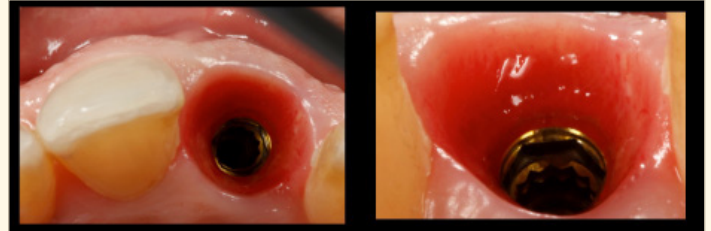
This is important because the graft seems to help preserve the contour of the ridge. The buccal bundle bone remodels, especially if it is thin. This is true almost 90% of the time after maxillary anterior teeth are removed. Thus, a graft should be placed, as most research shows that the contour of the ridge has less shrinkage with a graft than without a graft (Ref 3).



Graft placed into the gap



Provisional in place immediately after extraction and placement of a graft



Wound healing following 4 months of healing with a provisional in place.



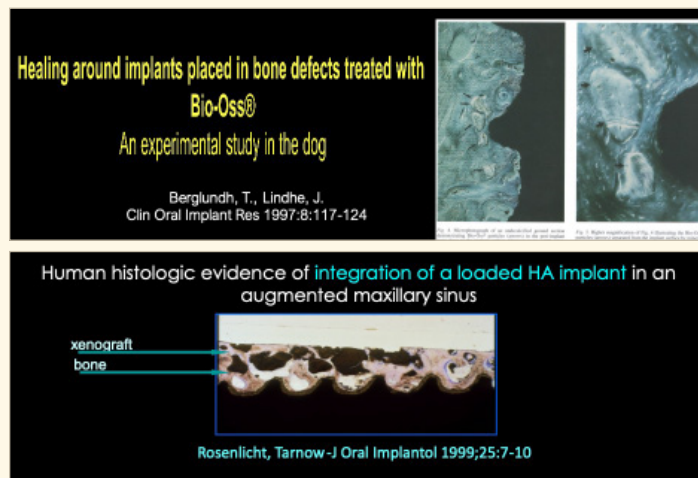
Final crown in place with 2-year follow-up. Notice that the tissue height and shape of the facial contour is barely changed with this process of grafting the gap.

3. What graft should be used if you do graft.

This is an interesting question that is mostly driven by companies instead of research. Many studies can be quoted to show that almost all grafts will help keep the shape of the ridge. Some may allow faster healing during the first two or three weeks, but there does not seem to be much of a difference after a period of a few months. If you want to make sure that the shape lasts, then use more non-absorbable grafts, like bovine bone or calcified allograft. If you want more natural bone to be in the gap after healing, then use more absorbable graft material.

4. What is histologically up against the implant after healing? Does the graft change the outcome or does it only act as a filler to maintain space and ridge shape?

This is something which many clinicians are not aware of. The reality is that whatever graft material you place, and no matter how firmly you place it, the particles are never against the implant after healing is complete. The graft is initially in a clot, and when angiogenesis occurs and new granulation tissue forms during healing, the graft particles are moved away from the bone. The particles are still in the gap, but they are NOT against the implant (Ref 4). This is true no matter what type of tissue or new bone ultimately forms against the implant. Thus, new bone, which is touching the implant, no matter how firmly the graft was placed. The graft material is still there if it resorbs slowly, but it's within the new bone that formed in the gap between the implant and the old buccal plate of bone. (Ref 4,5)

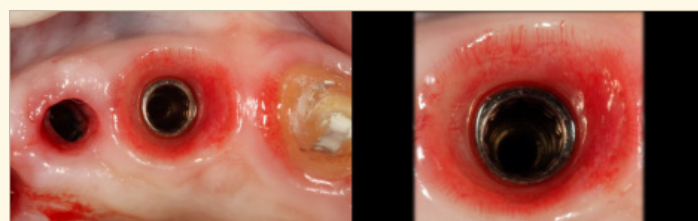


Notice that the bone graft particles in both studies show that the particles are NOT touching the implant after healing. The graft may still be present but not up against the healed implant surface.

5. Should the graft be covered with a custom abutment and/or a provisional?

Evidence consistently shows that optimal esthetic outcomes are achieved when a provisional restoration, or at a minimum a custom healing abutment, is placed at the time of surgery. This supports soft tissue healing in the correct contour and minimizes collapse during the healing phase.

Research demonstrates improved outcomes compared with sites left to heal without structural support for the gingiva (Refs. 3, 6). Additionally, the abutment or provisional helps contain the graft and stabilize it during early healing.



Notice that the tissue collapsed where there was no contoured healing abutment. However, notice the perfect shape of tissue right next to it when a custom healing abutment was placed. This saves the patient and the clinician chair time and at the same time give us better esthetic outcomes.

DELAYED Vs. IMMEDIATE Provisional Restoration

• Crespi R, Romanos GE, et al. Tissue remodeling in immediate versus delayed prosthetic restoration in fresh socket implants in the esthetic zone. Int J Periodontics Restorative Dent 2018;38(suppl):s97-s103.

	1 y	2 y	3 y	4 y
OI group	-1.24 ± 1.00	-1.15 ± 0.92	-1.27 ± 1.01	-1.32 ± 1.13
II group	-0.32 ± 0.67	-0.28 ± 0.61	-0.33 ± 0.21	-0.30 ± 0.58

	1 y	2 y	3 y	4 y
OI group	-2.21 ± 0.32	-2.40 ± 0.22	-2.30 ± 0.63	-2.32 ± 0.57
II group	-0.33 ± 0.72	-0.29 ± 0.41	-0.35 ± 0.49	-0.32 ± 0.53

This 4-year longitudinal study shows that the vertical recession was about 1mm less if the provisional was placed immediately. The horizontal collapse was about 2mm more when the abutment wasn't placed immediately.

Conclusions

This discussion illustrates an evidence-based approach leading to several key conclusions: The size of the gap does not significantly affect bone healing around an implant. Placement of a custom healing abutment or provisional helps maintain socket shape and minimizes contour shrinkage. Grafting the gap improves the ridge contour compared with leaving it unfilled. Graft material does not remain in contact with the implant after healing, regardless of type. The containment of the graft seems to help the shape and contour of the healed ridge.

References for this article are available by scanning this QR code.



Dr. Dennis Tarnow

Lessons From the Podium

By: Istvan Urban, DMD, MD, PhD

I felt deeply moved and honored when I received the news of being the first recipient of the Distinguished Speaker Award. It does mean a lot to me.

I never planned to be a speaker. Honestly, I did not even know that you could be one. However, I had a strong connection with teaching. When I was in my second year of dental school, I was deeply involved with anatomy. Because that was known among other students, friends of mine – even from medical school – asked me to help them prepare for their anatomy finals. I felt the way I explained anatomy to them helped in understanding areas that were not clear in the book or other lectures. In addition, I really enjoyed doing it. Things that you just had to memorize, I instead wrote poems about, using the initial two- or three-syllable structures of branches of nerves, etc., so that if you learned the poem, you learned the nerve or artery. I found a book that described more than 70 branches of the trigeminal nerve and made a poem out of it. This was a great help for me and my friends.

Later, when I became a clinician, I often thought about how teaching was something that I really enjoyed. I thought I had lost it forever. However, when I became a student at Loma Linda, it was mandatory to give a presentation about the topic of your choice. I chose peri-implantitis, read extensively, ordered audio recordings from an AAP session, and prepared thoroughly. The moment I finished my presentation; I realized that this was for me. Looking at the surprised faces around the room told me the same thing. However, my main goal was still to do great surgery with very thorough documentation. Later, I realized that this meticulous documentation could be used well for my presentations and publications.

Speaking in front of an audience has its challenges. Imagine that you are invited to speak to audiences with very different levels of expertise on the same topic – for example, on the main podium of the AO versus a prosthodontic congress. Add to these different geographic locations with varying language skills. You must mentally prepare for this, and you should be able to constantly read the audience from the beginning. Look into

their eyes, register their expressions and adapt without notice. The same title, the same slides, do not mean the same lecture. You have to perform at the audience's level. The presentation must be not only educational but entertaining as well. This way, no one falls asleep, which is an important part of learning.

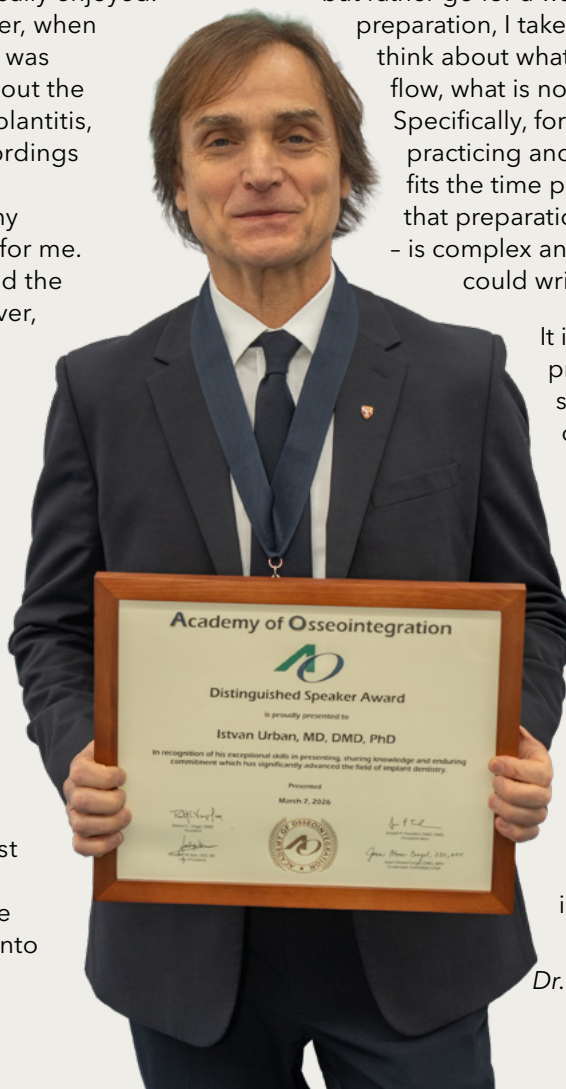
A lecture can be made much less effective depending on lighting settings, room temperature and air ventilation. I always check these items before my presentation and ask for any changes I feel are necessary. If the changes are not possible, I accept the situation and adapt rather than start blaming the organization before I even give the lecture. If the clicker does not work, or the timer is not running properly, blame yourself first. I always take my own timer and check the clicker ahead of time if it is not my own. This is similar to when you perform surgery. Don't blame somebody who did not prepare or clean your patient properly. It is your surgery, your presentation. You own it.

You must find a logical frame in your presentation. You may not need to start by putting slides into the computer, but rather go for a walk and think it over. During the preparation, I take breaks and go for another walk and think about what I still have to add, what does not flow, what is not logical or what needs improvement. Specifically, for short presentations, I recommend practicing and timing it, and removing slides until it fits the time perfectly. In the end, you must realize that preparation – considering all the circumstances – is complex and there is a learning curve. I feel that I could write a book about its complexity.

It is important that when you give a presentation, you make sure that it is on solid ground so you can be confident on the stage, no matter who the audience is and who thinks what. I wish I were as confident in all other aspects of life as I am in my profession.

At the beginning, practice in front of your peers to see what they think. However, I never did this, but I think for some it would have been a good idea. If the presentation is dry and boring, few will listen – even to good, valuable information. Do not sacrifice your lecture to satisfy other people's opinions or some company's interests. It really takes away from the value. Just do it. The rest will come.

Dr. Istvan Urban





The "Wild West Era" of Contemporary Full Arch Implant Therapy

Excellence will always rise to the top!



By: Dr. Kanyon Keeney, DDS, AO Diplomate

The evolution of full arch implant therapy has dramatically improved the quality of life for millions of patients throughout the world. Patients who are edentulous and those with a "terminal dentition" can experience potentially life-changing functional and esthetic restoration and rehabilitation in less time, at less cost and with lasting results. There are now more efficient digital workflows, enhanced surgical protocols, advanced implant concepts, and markedly improved prosthetic components, design and fabrication. This has resulted in potentially better treatment experiences and better outcomes.

With the evolution of the full arch treatment modalities, especially the "all-on-X" (AOX) approach, has come an explosion of more practitioners providing this care. There are now multiple variations as to how this treatment can be delivered to these patients. Those "traditional" surgeon/restorative doctor teams (usually in separate offices) have witnessed significant growth of various "full arch centers," as well as more doctors providing both surgical and prosthetic aspects of this treatment for the patient.

Although each mode of this treatment presents its own challenges, it provides the potential for improved patient access and ongoing advancements in the efficiency of these modalities. As this growth continues, there is a significant elevation of awareness for patients about the possibilities of full arch treatment. More people today know about "same-day teeth" than ever before.

The Wild West of "full mouth implants" refers to a booming, highly marketed and sometimes inconsistent landscape of full-arch dental restorations, such as "All-on-4" or "teeth in a day."

This increase in awareness by the public is mostly due to an explosion of marketing from a multitude of sources. Originally, a suggestion or referral by a patient's dentist might lead a patient to seek full arch treatment. Today, magazine and newspaper print media, television commercials and infomercials, mailers, email blasts, social media, YouTube, websites and even highway billboards have elevated this awareness exponentially. This can be good. When, however, the information they see is misleading, contradictory, varies by source or, even worse, is inflammatory against other practitioners or specialties or just plain untrue, this can be bad. It can be confusing and intimidating to many patients. Patients often complain

that they do not know what to believe or, worse, develop very unrealistic expectations. This is particularly important in patients with significant medical challenges or significant oral structural defects.

This period of time for full arch therapy has been loosely compared to the "Wild West Era" in U.S. history, where the promise of a better life led to the mass migration of millions to the western United States

territories. Most found this better life, but some found misery. A plethora of misinformation and inexperience played a major role.

The Wild West of "full mouth implants" refers to a booming, highly marketed and sometimes inconsistent landscape of full-arch dental restorations, such as

Continues on page 12



"All-on-4" or "teeth in a day." While these procedures offer life-changing benefits such as restored chewing, improved confidence and permanent, fixed teeth, they come with high costs (\$20,000-\$100,000-plus), significant surgical risks and a wide variance in quality of care and provider experience. All-on-X treatment, while offering a revolutionary, life-changing, "teeth-in-a-day" solution for full-arch restoration, can become a "mayhem" (nightmare scenario) primarily due to improper treatment planning, poor patient selection and lack of experienced, collaborative care. While success rates often exceed 95% for properly executed cases, failure often stems from a "one-size-fits-all" approach.

Not all "terminal dentition" cases have to be treated as "terminal dentition." Some patients do not need 12 mm of vertical bone reduced, and some full-arch cases may not need to be "full-arch." Some FP3 cases may be better as FP1. Some "all-on-X" immediate-load cases may be better transitioned rather than immediately. Some patients may benefit more long-term from grafting certain areas in conjunction with their treatment, rather than defaulting to zygomatic or pterygoid implants. While these protocols can significantly change the lives of "terminal dentition" patients, failure to address the very reasons why they got there in the first place through patient education and clearly demarcating the patient's responsibility for care could lead to an increased risk of implant and/or case failure. "All-on-4 regret" is a term loosely used in some legal corners and in litigation against dental practitioners. The tendency is to attack the practitioner's experience, skill set, lack of collaborative care, need to remove all of a patient's teeth when there are "still six good teeth," etc. Also, frequently, in litigation against our colleagues, these cases suggest the perception of greed.

While some patients receive their treatment at academic centers, the majority will undergo this therapy in some form of private practice or corporate dental center. The latter two are businesses. The business of implant therapy involves art, science and a business model. The business model of different styles of practice may vary, but one principle should never vary: provide the patient with the treatment that is best for them, both short and long term. We are doctors and practitioners of the healing arts with an ethical and legal obligation to do what is best for the patient, not

what is best for the business model. It is a worthy goal to have an efficient, successful business model, but the business model of any practice should never be the primary driver in clinical decisions for the patient.

When you explore the three most common "avenues" for the patient to obtain treatment, there are compelling advantages and disadvantages to each:

- a) The "traditional" two-doctor private practice (often specialists/different offices)
- b) The one-doctor treatment (the same doctor performing both the surgical and restorative aspects of treatment)
- c) The full arch implant center

Factors that vary with these models could include convenience for the patient, total treatment time, communication with the patient, accurate initial diagnosis and recognition of risk factors, management of all levels of clinical complexity, the overall range of treatment options available, management of significant medical compromise, laboratory interaction and digital workflow, long-term follow-up, management of complications and cost. There are significant beneficial lessons to be learned from all three treatment "avenues." In the end, however, what is best for the patient has to be paramount.



- Patients who are edentulous or have terminal dentition are among the least healthy patients we will treat. Their various morbidities and comorbidities require adequate diagnosis and assessment. Effective management, along with adjustments and modifications to the treatment process, is essential. Failure to identify and manage these risks can lead to significant complications and failure. Your treatment algorithms and workflow must take this into account. We are doctors, not "wood shop technicians." The very best digital workflow, equipment and implants can be easily overcome by significant medical compromise.
- The experience level of the doctors has been shown to be a major determinant in the success and failure of full arch treatment. Practitioners new to these protocols

need extensive training. Case selection early in their “full arch career” should be commensurate with their experience and can benefit from collaborating with doctors who have more experience with these case types. It is best to avoid having one’s “ego write checks that your skill set can’t cash.”



- The best digital workflows, techniques and implant systems cannot compensate for making the wrong choice for our patients. We have to document the diagnostics and communication that we utilized in the process of determining the treatment choice. Among this documentation is evidence that we gave the patient many options, and we truly listened to the patient’s preferences (whether or not they are realistic). This relies on a powerful connection that is established with the patient who is candid and realistic. We cannot gloss over the pros and cons of our full arch treatment for these patients. This also includes informing them of their responsibility. They have to know what is expected of them, and this has to be documented. They need to take “ownership” of the maintenance, hygiene and follow-up that is necessary in full arch treatment. No matter how well we treated the patient, no matter how advanced our surgery and prosthetics, poor home care, unchecked parafunction and inconsistent or absent follow-up can doom even the best work.
- Any practice or “full arch center” has the right to market and advertise in the way it deems necessary as long as it falls within the bounds of state law and the professional governing boards. Some choose to market based on the fee or “price” of treatment. This certainly can attract new patients. It can also create pressure to compromise care where “one size fits all” may not work because of structural or medical complexities. No two cases are the same, and “what’s best for the patient” should always guide the treatment course. In a market economy, competition is usually good. However, when patients shop for and select full-arch treatment based primarily on cost, there are risks. It is very difficult for patients to differentiate other factors such as expertise, experience, training, quality of care and long-term outcomes. Therefore, many will reflexively default to what they do know, and that is price. Of course, their treatment is not like other commodities, but rather the chance for a life-changing experience. Those doctors who choose not to “match” fees need to be able to attract and educate the patient on the value of treatment with them. This should never come, however, at the expense of denigrating other practices or centers.

Those practices that want to expand their implant and full arch focus have a multitude of avenues by which to grow, regardless of cost and the perceptions of “overcompetition.” The number of patients who are

edentulous or have “terminal dentition” greatly exceeds the number of practices and centers that can treat them. Obviously, economics plays a major role, but it is all about attracting these patients to your practice, helping them realize its value, accepting your agreed treatment and then executing it in an efficient, clinically appropriate and successful way.

Often referred to as the A.C.E. system (Acquisition, Conversion and Execution):

- **Acquisition:** Attracting patients to your office who may or may not be solely driven by cost. This comes with the concept of branding. Become the best practice to go to for this treatment, regardless of cost. This, of course, takes time. It can involve any combination of advertising, including social media, referral outreach to multiple sources in the dental community and the community in general, lectures, articles and giving courses. It always includes credentials above and beyond the norm. A great example would be credentialing (Master and Diplomate) by the Academy of Osseointegration. Choose to be unique and become the “go-to” practice for full arch treatment.
- **Conversion:** Once you get the patient to your office, then you have to convince them of the value of doing it with you. This involves a connection established by the patient with you and your practice. Office, staff, you and the overall communication and flow of the experience for the patient should leave them with the feeling that “these people hear me,” “this practice knows what they are doing,” and “this is the place where I want my treatment.”
- **Execution:** This is where experience, training and technology take control to provide a streamlined, efficient, predictable, accurate and comfortable experience for the patient. The goal is to provide excellence, both short and long term, that the patient will tell everyone about.

The evolution of full arch therapy in our profession has been quite remarkable. As with all technological advancement that transitions to mainstream use, there have been and will continue to be more “growing pains.” It is vital that we recognize and overcome the challenges to provide a true improvement in the quality of life for the patients we treat. Even the “Wild West” days of United States history were followed by significant improvement in the quality of life for most people, as well as powerful economic growth. The leaders and members of the Academy of Osseointegration are certainly vital and at the forefront of improving the quality of care and striving for excellence.



In the words of Vince Lombardi, “**Perfection is not attainable, but if we chase perfection, we can catch excellence.**”

Highlights from the Academy's 2026 Annual Meeting

Capturing the Spirit of the 41st AO Annual Meeting

From March 5-7, 2026, Annual Meeting of the Academy of Osseointegration brought the global implant dentistry community to Washington, DC, for three days of education, innovation and connection. This photo collection captures the energy and spirit of the meeting – from scientific presentations, educational seminars and hands-on clinics to award ceremonies, the excitement of the Osseo Blast and the camaraderie shared among colleagues and friends throughout the event. Together, these images reflect the collaboration, discovery and professional community that continue to define AO and advance the future of implant dentistry.

01 A congratulatory moment on stage with Drs. **Lambert Stumpel**, **Joseph Fiorellini** and **Robert Vogel**.

02 Dr. **Bunmi Tokede** started off the Opening Symposium with his keynote presentation, "Why Before How: Person-Centered Care in the Age of AI."

03 Everyone had fun at the Young Clinicians' Reception at Five Iron Golf.

04 Dr. **Hom-Lay Wang** drew a big crowd presenting at a Town Hall Clinical Presentation.

05 Dr. **Irene Marron-Tarrazzi** lights up the stage with her presentation, "Why Less Is More: The Power of Minimalism in the Esthetic Zone."

06 The Osseo-Blast was an unforgettable reception inspired by the Roaring '20s – where Art Deco sophistication set the scene for lively conversation.

07 Outgoing AO President Dr. **Robert Vogel** was putting on the Ritz.

08 ePoster Presentations where a great success in which authors answered questions regarding their research.

09 Learning at a Hands-on Workshop.

10 A packed house in the main ballroom engages with a cutting-edge clinical presentation.

11 Dr. **Bach Le** captivates the audience presenting: Hard Tissue, Hard Choices: What We Know, What We Pretend to Know, and What Patients Really Need.

12 Recipients of the 2026 Distinguished Awards. Drs. from left to right: **Istvan, Hom-Lay Wang, Lyndon Cooper** and **Dennis Tarnow**.

13 Approximately 100 exhibiting companies were on display and attracted large crowds throughout the Annual Meeting.

14 Closing Symposium: Answering Our Why.

15 Congratulations to all our AO award winners!



01



05



06

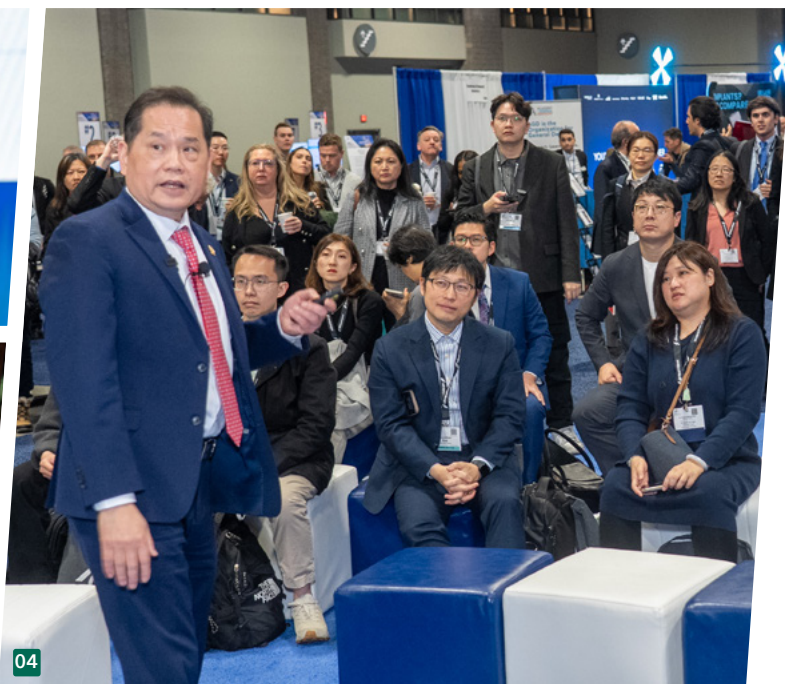


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14

[Click here to view the online photo album](#)



A Professional Journey Rooted in Periodontology and the Academy of Osseointegration

By: AO Fellow *Daniele Cardaropoli, DDS*

I graduated in dentistry from the University of Torino, my hometown in Italy. During my undergraduate years, I developed a passion for periodontology and oral implantology, publishing a thesis on guided bone regeneration.

In 1997, I started my private practice, which has expanded over time to become a leading center for periodontology and reconstructive surgery of soft tissue and bone.

Over the years, I have achieved several professional milestones, including becoming an active member of the Italian Society of Periodontology, the European Federation of Periodontology, the Italian Academy of Osseointegration and the Italian Society of Oral Surgery, as well as a Fellow of the International Team for Implantology.

My publications and scientific research have earned prestigious recognition, including the 2022 R. Earl Robinson Periodontal Regeneration Award from the American Academy of Periodontology and the 2022 International Award in Scientific Research from the Ancient Salerno Medical School.

I currently serve as an adjunct clinical professor in the Department of Periodontics at Penn Dental Medicine at the University of Pennsylvania. This latest milestone, achieved through my fellowship with the Academy of

Osseointegration, likely began nearly 30 years ago when I started attending the Continuing Education Program at the Harvard School of Dental Medicine. There, I met Drs. **Joseph Fiorellini** and **Myron Nevins**. I would also like to take this opportunity to pay tribute to Ron Nevins, a man who had a profound impact on my professional growth, becoming both my mentor and a role model I have always admired.

Over the years, I have attended several AO Annual Meetings, both as an attendee and invited speaker. I have always appreciated the high scientific value of the educational programs, as well as the camaraderie shared among colleagues. Achieving AO fellowship means embarking on a long journey that spans several years and encourages the development of a strong sense of community and belonging within the Academy.

I can honestly say this fellowship is a source of great professional pride for me, especially considering the limited number of non-American fellows. I hope to contribute to the continued growth of the outstanding scientific community represented by the Academy of Osseointegration.



Dr. Daniele Cardaropoli



A Journey Worth Taking

By: AO Fellow and Diplomate Peter Moy, DMD



Dr. Peter Moy

My journey through osseointegration has been remarkable. I have much to be thankful for. I was fortunate to have had the opportunity to be involved from the beginning. I was just finishing my training in oral and maxillofacial surgery when Professor **Per-Ingvar Brånemark** introduced osseointegration during the now-famous Toronto Conference in 1982. In the beginning, you couldn't take training with the Swedish team in osseointegration as an individual. You could only take training as a team: one individual from the prosthodontic side and one from the surgical side. This requirement was based on Brånemark's insistence on thoroughness and completeness in communication between treating team members, and more importantly, with our patients. As a young surgeon, I was fortunate to be asked by Dr. **John Beumer III**, former chair of maxillofacial prosthodontics at UCLA, to fill out the surgical side of the team from UCLA. For this, I am thankful.

I was fortunate that P-I (as he preferred to be called) took me under his wing and mentored me throughout my career in implant dentistry. Initially, he called me "the young aggressive surgeon." I didn't understand at first; I thought I was showing my enthusiasm for learning from him. As I became more experienced with osseointegration, I started to understand why P-I called me the young, aggressive surgeon. I needed to slow down, think through the process, and provide my patients with the very best that I have to offer. He saw something in me that was worth his time and effort - to transform me from a young, aggressive surgeon into a responsive, understanding and caring surgeon for the betterment of my patients. For this, I am thankful.

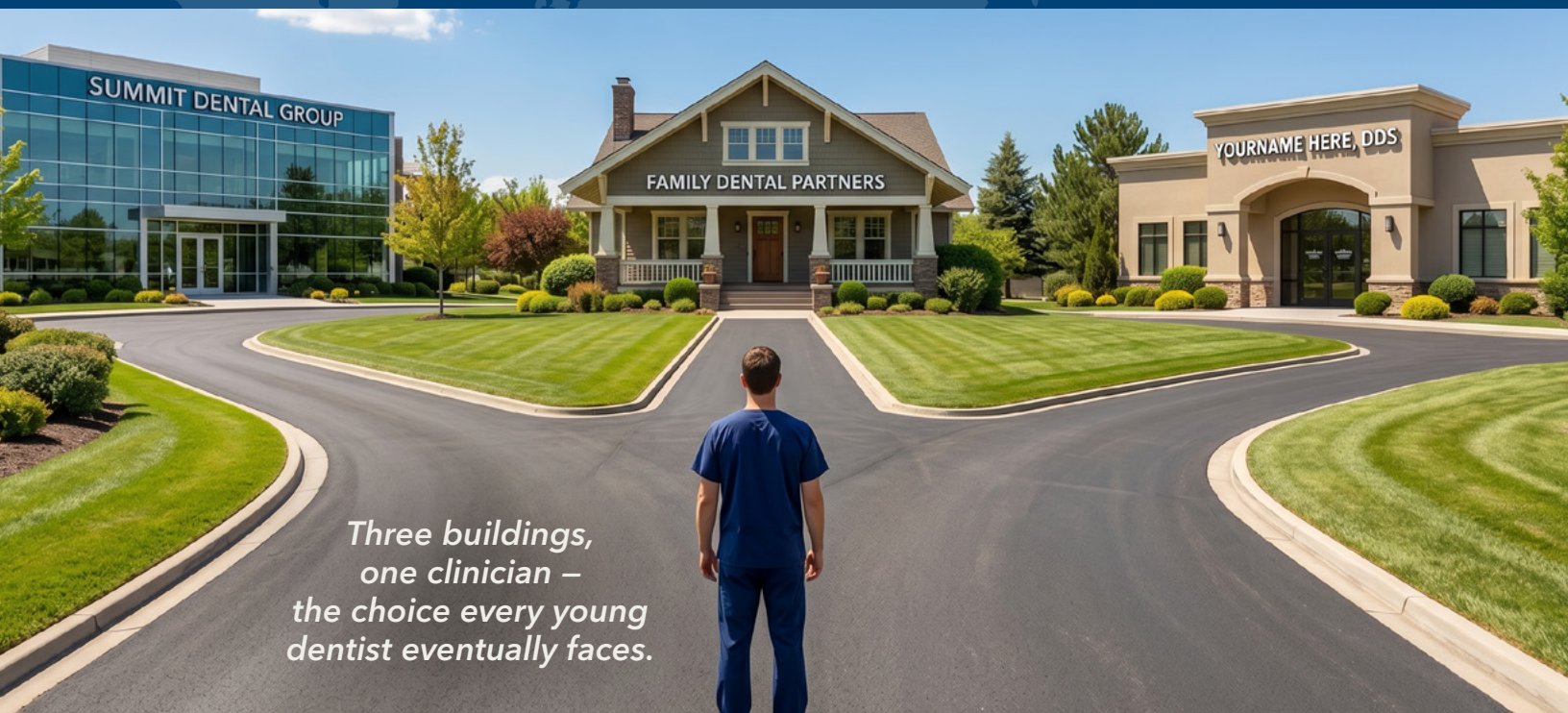
I learned how to be a decent surgeon by following P-I's principle of the five "P's": Persistent Precision Provides Predictable Prognosis. To this day, following this principle daily has provided me with a successful career. From my first meeting with my patient, through diagnostics and workup, to performing the surgical procedure, to referring my implant patient back to have their prosthesis fabricated, to their examination immediately after delivery of their implant restoration, to their annual follow-up visits

and care, I attempt to be as precise as possible to give my patients predictable outcomes. I use the five P's in everything that I do as an oral and maxillofacial surgeon. For this, I am thankful.

P-I taught me the importance of research and how to carry it out. Not having a PhD like him, I attempt to mimic his approach with my clinical research. I remember with fondness the times P-I invited me to spend two-week periods annually in his research lab in Göteborg, as well as time in the operating room to observe his surgeries. What I enjoyed most was the time spent in his office after the surgeries to discuss the details of the procedures he performed. P-I taught me to connect biology with every surgical procedure that I perform. To this day, I try my very best to mentor students, graduate residents in other specialty programs, oral and maxillofacial surgery residents, and implant surgical fellows in the same fashion. For this, I am thankful.

I have been privileged to observe and participate in the inception of the Academy of Osseointegration and to have served as its 26th president. It has taught me the importance of organized dentistry and its facilitation of scientific symposiums, hands-on training programs and continuing education. For this, I am thankful.

To me, it is most important that all of us carry on the legacy of Professor P-I Brånemark. Without his penchant for research, for biology and for his patients, implant dentistry would still be in its formative stage and the Academy of Osseointegration would not exist. We have an obligation to "pass this forward" to many more generations to come. I encourage all of you to take this wonderful journey and experience the rewards that osseointegration can provide. The Academy of Osseointegration is best positioned to permit its members to pass it forward; please take advantage of this opportunity. It is an extreme honor to receive the Brånemark Award from the Osseointegration Foundation - an award named to honor my mentor. And for this, I am most thankful.



*Three buildings,
one clinician –
the choice every young
dentist eventually faces.*

Three Roads Diverged

Helping Young Clinicians Choose Their Career Pathway in Implant Dentistry

By: Gino DeSimone

*“Two roads diverged in a yellow wood,
And sorry I could not travel both...”*

– Robert Frost, *The Road Not Taken* (1916)

Robert Frost wrote those lines more than a century ago, but every fourth-year dental student and every newly credentialed implant clinician knows the feeling. You finish residency or graduate from school with a deep clinical toolkit, an oversized loan balance, and a question Frost himself would recognize: which road do I take? In our profession, the wood is not yellow, and there are not two roads but three – joining a Dental Service Organization (DSO), accepting an associateship with a private practitioner, or opening (or buying) a practice of your own. Each road leads somewhere worthwhile. None of them is wrong. The right one is the one that aligns with who you already are and who you intend to become.

I have spent enough time in this profession to know that the answer is rarely obvious on day one, and that the most confident-sounding advice – “associate first,” “never join a DSO,” “buy a practice the moment you can” – usually says more about the advisor than about the clinician asking. What follows is not a prescription. It is a framework, a conversation, and a self-assessment tool meant to help you read your own professional DNA before you commit to a route.

The Three Roads Joining a DSO

A dental service organization (DSO) removes most of the business from the practice of dentistry. Patient flow is built before you arrive. Scheduling, billing, HR, marketing, compliance, and technology procurement happen in another building, often by another team. Many DSOs invest aggressively in CBCT, intraoral scanners, guided surgery workflows, and continuing education – tools that a solo owner might wait years to afford. Compensation is predictable, benefits exist, and if you decide to relocate, your credentials and W-2 transfer cleanly to another office in the network.

The trade-offs are real. Clinical autonomy lives within protocols set by someone else. Compensation models include ceilings – production splits, daily rates, or capped bonuses – that reward consistency more than entrepreneurship. Culture varies enormously from group to group and even from office to office within the same group, so due diligence on the specific location matters more than due diligence on the brand. Patient continuity can suffer when providers rotate, and that loss is felt most keenly by the implant dentist whose work is, by definition, a long-term relationship.

The Associate Path

Associating with a private practitioner is the road that most closely resembles an apprenticeship. A senior owner

who has built a referral base and a surgical workflow takes you under their wing, refines your judgment, and in the best cases hands you a path to partnership or buy-in. You inherit a culture rather than design one. You learn how a real practice runs without carrying its risk. For an implant clinician early in the case-volume curve, the value of a thoughtful mentor – someone who has placed thousands of fixtures, managed complications, and developed a referral network – is almost impossible to overstate.

The risks are subtler than at a DSO. Income is more variable, especially in the first year while your schedule fills. Buy-in terms can be opaque, and "path to ownership" is sometimes more aspirational than contractual. Growth is bounded by the senior doctor's pace, philosophy, and willingness to share advanced cases. The single most important due-diligence question for an associateship is the one most candidates avoid asking: show me the math, and show me the timeline.

Starting or Buying a Practice

Ownership is the road with the steepest grade and the broadest view. The income ceiling is the highest of the three because you keep what you build. You design the lifestyle – the hours, the team, the case mix, the technology, the brand. Equity accumulates in the practice itself, which becomes a transferable asset in a way that a paycheck never will. For the implant dentist who wants to integrate surgical and restorative care under one roof and control every variable that affects an osseointegrated outcome, ownership is uniquely satisfying.

It is also genuinely hard. You will sign personal guarantees on a loan that may approach seven figures. You will hire, train, occasionally fire, and frequently apologize to your team. You will become, in the morning, a CEO, and only after lunch a clinician. The stress is real, the time commitment is large, and the early-year cash flow is unforgiving. None of this disqualifies ownership – the highest-satisfaction clinicians I know are owners – but it is not the right starting point for everyone.

Part 1 – How the Three Roads Compare

Before you score yourself, it helps to see what each road typically asks of you and offers back. The table below (Figure 1) is not opinion; it is a snapshot of the structural realities of each pathway in implant dentistry today. Read across each row to understand how a single consideration plays out differently across the three roads. A "high" or a "low" is neither praise nor criticism—it is a fact about the path that you may experience as a feature or as a flaw, depending on your wiring.

Part 2 – Your Personal Scorecard

Now make it personal (Figure 2, next page). For each row, rank the three options 1, 2, or 3 from your own perspective – 1 for the option that fits you best on that dimension, 2 for the second-best fit, and 3 for the option that fits you least. Each rank can be used only once per row. Then add each column. Like golf, the lowest total wins: the column with the smallest sum is the road that, dimension by dimension, lines up most closely with your professional DNA today.

Be honest, not aspirational. The point of the scorecard is to surface what you actually want, not what you think you should want. If "income predictability" matters more to you than "equity potential," rank that way – there is no shame in self-knowledge.

Read your lowest-scoring column with curiosity, not finality. If your lowest score is in the DSO column, you are not committing to a corporate identity for life; you are recognizing where your current strengths and constraints align. If it is in the ownership column, you are not obligated to sign a lease tomorrow; you are flagging a destination. And if two columns are almost tied, go back and look at which rows decided it – those rows are telling you what you actually value most.

The Decision Is Fluid

Here is the part of this conversation that the scorecard cannot show on its own: the road you choose at 30 is not

Consideration	DSO	Associateship	Ownership
Risk Tolerance Required	LOW	MEDIUM	HIGH
Leadership Skills Required	LOW	MEDIUM	HIGH
Business Acumen Required	LOW	MEDIUM	HIGH
Clinical Autonomy Provided	LOW	MEDIUM	HIGH
Financial Debt Exposure	LOW	LOW	HIGH
Mentorship Available	MEDIUM	HIGH	LOW
Income Predictability (early years)	HIGH	MEDIUM	LOW
Equity / Wealth Potential	LOW	MEDIUM	HIGH
Lifestyle & Schedule Control	MEDIUM	MEDIUM	HIGH
Patient Continuity	LOW	HIGH	HIGH

Figure 1. How each road compares across ten career-defining considerations.

Continues on page 20

Three Roads Diverged... (continued from page 19)

Consideration	DSO	Associateship	Ownership
Risk Tolerance	()	()	()
Leadership Interest & Skills	()	()	()
Business Curiosity & Acumen	()	()	()
Need for Clinical Autonomy	()	()	()
Comfort with Financial Debt	()	()	()
Desire for Mentorship	()	()	()
Income Predictability Preference	()	()	()
Long-Term Equity / Wealth Goals	()	()	()
Lifestyle & Schedule Control	()	()	()
Patient-Continuity Importance	()	()	()
TOTAL (lowest score wins, golf-style)	_____	_____	_____

Figure 2. Personal scorecard. Rank each row 1, 2, 3 (each rank used once per row). Lowest column total = best fit.

the road you are sentenced to at 50. Careers in implant dentistry, more than in almost any other clinical specialty, are remarkably elastic. The associate of today becomes the partner of next year and the sole owner of the year after. The DSO clinician who learns operations and leadership inside a corporate group buys a single office in their thirties and a second one in their forties. The owner who builds and sells a thriving practice moves into a senior associate role to slow down, mentor a successor, and protect the surgical outcomes they spent twenty years cultivating.

I have watched all three pivots happen, more than once, in the practices around me. A DSO is often the cleanest place to build clinical confidence and case volume in the first three years out of school; an associateship is often the right bridge between competence and command; ownership is often where a mature clinician finally expresses everything the previous two roads taught them. The roads connect. They are not parallel.

Treat your first decision as a starting position, not a destination. Re-rank yourself every two to three years against the same scorecard and watch how your numbers migrate. Risk tolerance grows (or shrinks) with a mortgage and children. Leadership interest sharpens after you have led a team or watched one fall apart. Comfort with debt is different at thirty-two than at forty-two. The scorecard is not a one-time exam; it is a check-in.

Your Personal and Professional GPS

Frost ends his poem with the line everyone remembers – "I took the one less traveled by, / And that has made all the difference"—and almost everyone misreads it. The poem is not a celebration of contrarianism. Read carefully, the two roads are described as "really about the same." The difference is not in the road. The difference is in the traveler.

That is exactly the right lesson for the young clinician standing at the edge of three professional roads. None of them is objectively superior. The DSO is not a compromise. The associateship is not a holding pattern. Ownership is not the only legitimate definition of success. The road that will make all the difference is the one that fits the person walking it – your professional DNA, your appetite for risk, your tolerance for ambiguity, your love of a team or a quiet operatory, your life outside the chair.

I encourage every young clinician I mentor to build a personal and professional GPS before they choose. The destination on that GPS is not a building or a tax structure; it is a version of yourself five years from now who is satisfied in their role, surrounded by the team they want, treating the patients they were trained to help, and going home in time for the life they want to live. Once that destination is honest, the road plots itself. The DSO, the associateship, and the ownership road each lead there for some clinicians and away from it for others. Your job is not to pick the road with the most prestige or the highest ceiling. Your job is to pick the road that, on any given Tuesday afternoon, leaves you wanting to come back tomorrow – because the patients in your chair are counting on a clinician who does.

Read about all three roads. Talk to people who have traveled each of them. Score yourself honestly. Choose a journey, not a path. And when, in 5 or 10 years, you find yourself looking at a different fork in a different yellow wood, score yourself again. That is not indecision. That is a career.

*"...I took the one less traveled by, /
And that has made all the difference."*

– Robert Frost

Considerations for the Prosthetic Restoration of Fully Edentulous Patients With Severe Atrophy: Prosthesis Type, Material Selection and Digital Workflows

By: Mariano Pollack, DDS

Introduction

The contemporary rehabilitation of the fully edentulous patient with implant-supported prostheses requires careful selection of prosthesis type, material, and workflow. These decisions become more complex in the presence of increased atrophy, where vertical and horizontal deficiencies amplify biomechanical demands, prosthetic space, and leverage forces. Proper sequencing of prosthetic planning, material selection, and digital workflow verification is therefore essential.

Fixed vs. Removable Prostheses in Severe Atrophy

Severe atrophy is often assumed to necessitate a removable prosthesis to provide lip support through a flange, particularly in the maxilla.¹ If this were universally true, fixed restorations would be contraindicated in advanced atrophy. However, clinical comparisons of flange versus flangeless prostheses demonstrate that differences in lip support may be clinically insignificant when prosthetic teeth are properly positioned.²⁻⁵ Adequate lip support may be achieved with fixed restorations provided tooth position, occlusal plane, and prosthetic contours, among other parameters, are appropriately designed. Therefore, ridge morphology alone should not dictate prosthesis type. Proper prosthetic planning following a detailed individual examination must guide treatment decisions.

Maintenance considerations, however, remain critical. Posterior atrophy combined with anterior resorption may limit implant distribution and increase prosthetic volume, potentially complicating access for hygiene. Fixed prostheses in severely atrophic patients may present unique hygiene challenges, particularly when substantial vertical and horizontal restorative space is required. Appropriate patient education in prosthesis maintenance, combined with enrollment in a structured professional hygiene recall protocol, is essential for long-term success.⁶

Material Selection and Biomechanical Implications of Severe Atrophy

Severe atrophy increases vertical prosthetic height, which enlarges the occlusal-to-implant platform distance and significantly elevates bending moments and tipping forces. Long spans and cantilevers, often unavoidable due to reduced bone volume and limited implant distribution, further increase tensile stresses across the prosthesis. Larger prostheses also increase overall weight and mechanical demand. In this environment of amplified leverage, material behavior under tensile stress and bending becomes critically important.

Monolithic Zirconia

Monolithic zirconia is widely used because of its high flexural strength and favorable esthetics. However, higher MPa values do not necessarily equate to safer frameworks in full-arch biomechanics. Zirconia performs well under compression but is less forgiving under tensile stress and bending.

Clinical evaluations of more than 100 full-arch zirconia prostheses followed for approximately six years reported only two catastrophic fractures.⁷ Importantly, those failures occurred despite connector dimensions exceeding the recommended minimums for monolithic zirconia. This suggests that zirconia, while strong, may demonstrate some unpredictability in catastrophic failure.

In severely atrophic cases, the increased leverage from vertical restorative space, long spans, and cantilevers amplifies tensile stress within the framework. When catastrophic fracture occurs, repair is not feasible, and complete prosthesis replacement is required. Therefore, zirconia's brittle failure mode remains a concern in high-leverage situations.

Continues on page 22



Dr. Mariano Pollack

Titanium-Zirconia Prosthetic Systems

Titanium-zirconia systems combine a milled titanium framework with a zirconia overlay cemented with resin cement, integrating titanium's ductility and fatigue resistance with zirconia's esthetics.⁸

Compared with monolithic zirconia, titanium-zirconia systems offer several biomechanical and clinical advantages. These systems are repairable, as fractured zirconia overlays can be remilled and recemented without replacing the entire prosthesis while titanium's capacity for elastic deformation may reduce, to a degree, the risk of catastrophic failure under functional load. They are also approximately 15% lighter than comparable monolithic zirconia prostheses, as titanium is less dense than zirconia.⁹ Cantilever tolerance is enhanced because connectors are engineered in titanium, and titanium cylinders are eliminated altogether.

When severe atrophy necessitates substantial vertical restorative space, tipping forces increase significantly. A titanium framework that splints implants may distribute stress more effectively, acting as a stress-absorbing substructure and reducing tensile concentration within the ceramic component. This may be particularly advantageous in cases with long spans or limited implant distribution.

Workflow Accuracy and Verification

Passive fit remains critical in full-arch implant restorations. Although fully digital workflows are increasingly promoted, evidence regarding the accuracy of complete-arch intraoral scanning without verification remains mixed.¹⁰ Verification jigs or milled try-ins are used because unverified full-arch scans may not consistently produce passive frameworks.¹¹ In most conventional protocols, the basic sequence therefore remains: scan, verify (through a physical jig), deliver.

In this author's view, any workflow that incorporates a physical verification jig or analog confirmation step should be classified as "hybrid" rather than fully digital. The elimination of the verification jig must occur in conjunction with explicit laboratory agreement, whereby the laboratory assumes responsibility for achieving passive fit.

Alternative methods have been proposed to improve full-arch scanning accuracy, including reverse, splinted scan bodies and photogrammetry. For the first two, rigid verification remains necessary.^{12,13} The literature

regarding photogrammetry is more conflicting: a recent meta-analysis by Pozzi et al.¹⁴ recommends rigid verification when photogrammetry is used, whereas other publications suggest that this step may be unnecessary.¹¹ This inconsistency complicates clinical decision-making. Horizontal scan bodies have been proposed as an additional approach to improve full-arch scanning accuracy,¹¹ and at least one commercially available system claims to obviate the need for a physical verification jig.^{15,16}

If an alternative workflow increases accuracy but not to a level that allows elimination of verification jigs, its clinical advantage becomes questionable. In the absence of laboratory-guaranteed passive fit without verification, investing additional time and/or expense in more complex workflows may not be justified.

Under such circumstances, the traditional "scan, verify, deliver" protocol remains a logical and economically efficient solution.

Conclusion

Prosthesis selection in fully edentulous implant rehabilitation must be individualized. Fixed restorations are feasible in severely atrophic cases when prosthetic factors such as lip support and tooth position, as well as maintenance considerations, are carefully addressed. However, severe atrophy increases leverage, tipping forces, and structural demands, making material selection critical.

Although monolithic zirconia is a reliable and esthetic option, its brittle behavior and limited repairability require careful case selection in high-demand situations. Titanium-zirconia prosthetic systems provide improved stress distribution, reduced catastrophic risk, lighter weight, and repairability, offering biomechanical advantages in cases involving large vertical and horizontal restorative space with long spans or cantilevers.

Workflow selection should follow the same biomechanical logic. A protocol can only be considered fully digital if physical verification is eliminated. If verification remains necessary, more complex or expensive workflows may offer limited practical advantage. In such cases, the "scan, verify, deliver" protocol with traditional jigs likely represents the most rational and cost-effective strategy.

References for this article are available by scanning this QR code.



Treating People, Not Patients: Eight Keys to Team Stability in Interdisciplinary Care

By: AO Fellow and Diplomate Robert Levine, DDS, and Michael Sonick, DMD

Introduction

As dentistry becomes increasingly specialized, interdisciplinary treatment has become not only more common, but often essential to achieving predictable, esthetic and biologically sound outcomes. Complex treatment involving periodontics, orthodontics, restorative dentistry, oral surgery, prosthodontics, laboratory support and hygiene maintenance can produce extraordinary results – but only when the team functions in alignment.

Over the years, we have come to appreciate that outstanding outcomes are not created by isolated technical excellence alone. They are created by stable teams: teams grounded in trust, united by a common purpose and committed to delivering coordinated care centered around the person behind the case.

Patients may enter our offices for treatment of missing teeth, periodontal disease, esthetic concerns or restorative complications, but what they ultimately experience is much larger than the procedure itself. They experience our communication, our consistency, our responsiveness, our values and the degree to which we work together on their behalf.

That is why the concept of team stability deserves greater attention.

Years ago, one of us described Six Keys to Team Stability as a practical guide for interdisciplinary collaboration. With time and experience, that original framework has evolved. Today, we would expand it into Eight Keys, incorporating



two essential dimensions that deserve to stand at the very beginning of the discussion: first, the importance of starting with why; and second, the enduring principle that we must always strive to treat people, not just patients.

Together, these eight keys provide a blueprint not only for better case execution, but for stronger professional relationships, greater fulfillment in practice and, most importantly, a more seamless and meaningful patient experience.

1. Start With the Why

Every enduring interdisciplinary relationship begins with a shared purpose.

Before discussing treatment sequencing, surgical timing, prosthetic design or tissue management, the team must first be aligned around a more fundamental question: Why do we do what we do?

As leadership expert Simon Sinek famously observed, "People don't buy what you do; they buy why you do it." If our answer is limited to replacing teeth, regenerating bone, moving roots or achieving esthetic outcomes, then we are operating only at the procedural level. Those are certainly important goals – but they are not the whole story.

Our deeper "why" is to improve people's lives. We help patients regain health, comfort, function, confidence and quality of life. We help them eat, smile, speak and interact with others with less fear, less pain and more security. We support their long-term wellness and, in many cases, help restore something deeply personal: their sense of self.

When an interdisciplinary team is united by a clear "why," clinical decisions become easier to navigate. Difficult conversations become more productive. Differences of

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opinion become less personal. The question shifts from "What can we do?" to "What is best for this person?"

2. Treat People, Not Just Patients (And Build on Trust)

One of the greatest strengths of modern dentistry is its technical sophistication. One of its greatest risks is that we can become so focused on the technical details that we forget the human being at the center of the treatment plan.

Interdisciplinary teams often manage advanced and emotionally significant cases. These may involve failed prior treatment, severe tissue loss, missing teeth, esthetic compromise, financial investment, time demands, fear or uncertainty. To the clinician, this may be a complex case. To the individual sitting in the chair, it is often something much more personal.

That person is not simply a patient record, a CBCT scan, a recession defect or a restorative challenge. They are a person with concerns, expectations, relationships, work and family obligations, prior health care experiences and emotional responses that influence every part of treatment acceptance and follow-through.

Treating people, not just patients, means we listen more carefully, communicate more thoughtfully and recognize that trust is the invisible currency of interdisciplinary dentistry. It is what allows a periodontist to confidently hand a case back to a restorative dentist and what allows a patient to feel secure as they move between different offices.

As researcher Brené Brown notes, "Trust is earned in the smallest of moments. It is earned not through heroic deeds, or even highly visible actions, but through paying attention, listening, and gestures of genuine care and connection."

In our practices, trust is built in these small moments: a timely phone call between specialists, a shared smile of reassurance to an anxious patient or the seamless transfer of records. When a patient witnesses a team that implicitly trusts one another, their own anxiety diminishes. They realize they are not being passed around; they are being held up by a united front.

3. Quality of Patient Care Must Always Be Paramount

Once the team's shared purpose is clearly established, the first practical principle of stability becomes straightforward: Quality of patient care must always come first.

Every member of the interdisciplinary team must be committed to doing the best work possible, even when that means revising, refining or repeating a step in the process in order to achieve the outcome the patient deserves.

At times, this may require remaking a provisional, modifying a restoration, recontouring soft tissue, revisiting orthodontic movement, correcting a laboratory detail or addressing a complication without passing along

additional cost to the patient. This is not a sign of failure. It is a sign of integrity.

4. Respect Biological and Human Variability

Even with ideal planning, careful execution, and excellent communication, there is always the potential for variation in the final result. That is the reality of biology.

Outcomes can be influenced by the ease or complexity of a given case, anatomy and site limitations, tissue phenotype, wound-healing response, systemic or local factors, oral hygiene and maintenance, patient compliance and the skill and judgment of the clinicians involved.

Recognizing this reality is not a lowering of standards - it is a mark of maturity. Highly functioning teams understand that interdisciplinary care is not engineering in a laboratory. It is health care delivered to human beings.

5. Clearly Define Expectations and the Shared Treatment Vision

A surprising number of interdisciplinary problems are not caused by poor clinical skill. They are caused by poor clarity.

For teams to function predictably, expectations must be defined clearly from the beginning. This includes alignment around diagnosis, prognosis, treatment objectives, sequencing, timing, responsibilities, limitations, and the envisioned final result.

When expectations are clearly defined, the team remains focused, and the patient benefits from coherence rather than confusion.

6. Respect the Expertise of Each Team Member

Interdisciplinary treatment only reaches its highest level when each member of the team truly values the expertise of the others.

No one discipline sees the full picture alone. The periodontist, restorative dentist, orthodontist, oral surgeon, prosthodontist, laboratory technician, and hygienist each contribute a critical perspective that strengthens the outcome.





Stable teams are not built on competition for control. They are built on mutual respect, role clarity, and trust in expertise. As organizational psychologist Adam Grant observes, "The most meaningful way to succeed is to help others succeed." When specialists support each other's work rather than working in silos, the entire team elevates its standard of care.

7. Accept Responsibility and Address Problems Directly

One of the clearest markers of a strong interdisciplinary team is accountability.

Each team member must accept responsibility for the treatment they render. If a concern arises during the course of care - whether identified by the patient, another clinician, or a member of the staff - there should be confidence that it will be addressed directly, professionally, and without defensiveness.

The best teams do not ask, "Whose fault is this?" They ask, "What is the best way to solve this for the patient?"

8. Commit to Respect, the Relationship, and Continuous Improvement

The final key to team stability may be the most important of all: Do not abandon the relationship when things become difficult.

There will be moments in every interdisciplinary relationship when treatment does not go exactly as planned. There will be complications, refinements, disappointments and differences of opinion. Stability is built by how we respond to them.

Strong teams stay in the conversation. They stay committed to one another. They learn from what happened. And they improve.

A Symphony in Action

Perhaps the best metaphor for interdisciplinary care is that of a symphony. Each participant is highly trained. Each has a distinct role. Each contributes something essential. But the patient does not come to hear isolated instruments. The patient comes to experience harmony.

When the interdisciplinary team is functioning well - when the purpose is shared, the communication is clear, the expertise is respected and accountability is embraced - the process becomes seamless for the patient.

Conclusion

The concept of team stability extends far beyond logistics or referral relationships. It reflects a deeper professional commitment to shared purpose, mutual respect, accountability and the kind of patient-centered care that places the individual - not merely the procedure - at the center of every decision.

When these principles are lived consistently, interdisciplinary care becomes more than coordinated treatment. It becomes a seamless expression of trust, purpose and excellence. And while the clinicians may grow, the practice may flourish, and the team may deepen in strength, the greatest beneficiary remains exactly who it should be: the patient.

References for this article are available by scanning this QR code.



Learn more about the book "Treating People Not Patients."



The Quiet Crisis in Peer Review for Our Clinical Journals: Why Clinical Science Needs More (and Better) Reviewers – Now

By: AO Fellow and Diplomate Clark Stanford, DDS, PhD, MHA; Editor-in-Chief, International Journal of Oral & Maxillofacial Implants (IJOMI)

If you spend enough evenings as an editor, you learn the distinctive silence of a stalled review. It is the quiet that follows the sixth invitation sent to the perfectly matched expert; the pause after a cordial 'regret - I'm overloaded'; the dead air after two weeks, then four, then eight, while a promising manuscript sits in limbo. I ache at this point to inform the authors as to why it's taking so long to get an initial decision. It is tempting to call this an inconvenience, but it really is more of a crisis since many authors are new in their career and need to know if we can move forward or they need to start over. The health of clinical research depends on a robust, timely, and diverse peer review ecosystem. And this system is under strain.

As Editor-in-Chief of *IJOMI*, I witness a contradictory truth each week: we have more scientific output than ever, yet a shrinking pool of reviewers able or willing to thoughtfully critique that output. The consequences - delays, inequities in workload, inconsistent quality, and author disillusionment, touch every point along the research-to-care continuum. If we want excellence in research and the responsible translation of evidence to clinical practice, we must confront the structural and cultural impediments that keep our best minds from reviewing, and our best science from advancing.

Why is this?

There are multiple potential issues but one way to think of this is to look at the "Anatomy of Reviewer Fatigue."

The friction points are:

- 1. Shortage of time among the very experts we need most.** The clinician-scientists, methodologists, and subspecialists who can best detect subtle design flaws or overreaching conclusions are the same people carrying full clinical loads, mentoring trainees, writing grants, and leading teams. When time is finite, reviewing gets triaged to the bottom. No monetary reward, limited career recognition, and the prospect of combing through opaque statistical methods on a Sunday night, it's a hard sell.
- 2. Shortage of active reviewers.** There are too few people asked, too often. Editorial systems tend to circle the same clusters of names - safe hands, proven turnaround times, familiar institutions. We unintentionally create reviewer bias, monocultures and burnout them. Burnout leads to disengagement.
- 3. Mismatch between manuscripts and reviewer expertise.** Our science has become more interdisciplinary and methodologically sophisticated. It's not uncommon

to see a clinical trial incorporate adaptive designs, machine learning classifiers, complex survival models, or multi-omics correlates. Sending such papers to reviewers untrained in these methods produces either overcautious “rejects” or uncritical “accepts” – both harmful.

4. **Lack of accountability.** When reminders are toothless and deadlines symbolic, a two-week review quietly becomes a two-to-six-month delay. Authors feel ignored. Editors feel trapped between patience and fairness.
5. **Impact of invisible labor and credit.** Many institutions still do not meaningfully count peer review in promotion and tenure dossiers. We talk about reviewing as a scholarly duty but treat it as a favor.

What is the impact of publication delays?

In applied clinical fields – like implant dentistry, periodontology, prosthodontics, oral and maxillofacial surgery – a high-quality study can change practice patterns, and detailed peer review also potentially prevents weak science from informing clinical care.

When solid papers languish for months, several things can happen:

- **Innovation slows.** Teams postpone on going pending feedback and small startups or translational groups burnout.
- **Inequity widens.** Researchers with fewer resources – early-career investigators, teams outside well-funded hubs, colleagues in the Global South – are disproportionately harmed by timeline uncertainty.
- **Predatory alternatives become tempting.** The more respectable journals stall, the more authors – especially under career pressure – look toward pay-to-publish venues. rely on.
- **Trust suffers.** Clinicians grow cynical about “moving targets,” unsure if the most recent synthesis reflects the best available evidence or the artifacts of editorial delay.

We should be honest: peer review is the de facto regulatory layer of scientific integrity in our clinical community. When this level of review suffers, downstream systematic reviews, guidelines, chairside decisions all struggle and potentially inaccurate.

Reviewer diversity is also a Quality Control Mechanism

A robust reviewer pool is not only large; it is varied. Diversity of expertise, geography, discipline, gender, and career stage improves the reliability of judgments and recommendations.

What Editors can do

Editors are the stewards of this process. We have built a system respecting researchers’ time, improves the experience of reviewing, and concretely rewards excellence.

Here are steps that *IJOMI* and our peers have taken in the last four years:

1. **Right-size the request for reviews by an aggressive triage.** Editor rejections, when done carefully and transparently, are an act of respect and we use an average of 50% rejection before invitation for reviewers. Rigorous triage preserves reviewer attention for submissions that genuinely merit it.
2. **Structured, checklist-driven reviews.** Provide domain-tailored templates that focus reviewer attention on the highest-yield questions (internal validity, effect size interpretation, clinical significance, harms reporting, reproducibility). Structured reviews are faster to complete, easier to compare, and fairer to authors.
3. **Methodological co-review.** Pair content experts with methodologists or statisticians. A brief statistical audit – especially for RCTs, network meta-analyses, observational causal inference, and diagnostic accuracy studies – can protect against common errors (p-hacking, inappropriate modeling, overinterpretation).
4. **We are considering time-bound commitments with explicit outcomes.** Proposal is to move to shorter review time periods with a goal to complete within 14 days; automatic reassign at day 16.
5. **Recognition that counts.** Issue formal certificates of reviewing with quantified contributions and vouchers for Quintessence books and journals based on the number of reviews per year.
6. **Mentored reviewing.** Encourage senior reviewers to co-review with trainees and junior faculty, with explicit guidance. This scaffolds skill development, expands capacity, and demystifies the process.
7. **Feedback loops to reviewers.** Share editorial decisions and anonymized co-reviewers’ comments. Reviewers learn where their critiques aligned or diverged, improving calibration over time. It is astonishing how rarely we close this loop.

An ask I have is for reviewers to consider:

- **Accept fewer reviews**
- **Set a structured two-hour window.** Most reviews (post-triage) can be drafted in a focused 90-120 minutes using a checklist, with a short follow-up pass.
- **Co-review and teach.** Bring a trainee into the process, discuss your reasoning, and attribute their contribution if the journal allows.



Dr. Clark Stanford

- **Be specific and kind.** Precision helps authors; civility sustains a culture where experts still say, "yes."

What IJOMI Will Do

At IJOMI, we are committing to several near-term steps:

1. Transparent timelines and dashboards for authors and reviewers.
2. Mandatory reporting checklists at submission for relevant study types, easing reviewer burden and improving comparability.
3. Paired methodological review for complex designs and analyses.
4. Reviewer development tracks with micro-credentials, vouchers for frequent reviews, and annual recognition.
5. ORCID-integrated crediting and formal service letters to support promotion dossiers.
6. Diversity targets for reviewer invitations and editorial contributors, monitored and publicly reported.
7. Ethical AI assistance for compliance checks, with human oversight and clear boundaries.

Baby steps, but these are a start.

A Final Invitation

When I accept an editor role, I imagine inheriting a library I did not build, filled with work I must protect and extend. Peer review is the daily maintenance of that library: being sure to short the wheat from the hulls, and showcase the exceptional.

So here is my call to our community—clinicians, scientists, methodologists, and trainees:

- If you are an experienced reviewer, mentor one new colleague.
- If you are new to reviewing, seek training and say yes to your first invitation.
- If you are a university administrator, count reviewing in performance reviews and promotion and tenure.
- If you are an author, adhere to reporting standards and be sure to follow the journals guidelines.
- And if you are an editor, join me in building systems of trust.

Excellence in clinical research doesn't happen by accident. It is the product of thousands of small, principled choices—most of them made by volunteers. Let's choose, together, to strengthen the scaffolding that holds up our clinical our science.

Author's note: *If you'd like to be considered for IJOMI's reviewer development track or to co-review with a senior colleague, reach out. We will match your expertise with opportunities and support you with checklists, mentorship, and recognition.*

Tribute to Robert Miller, DDS

By: AO Fellow and Diplomate Jörg Neugebauer, DDS and AO Fellow and Diplomate Christian Mertens, DDS



Dr. Robert Miller

The Academy of Osseointegration community was deeply saddened by the sudden passing of AO Diplomate **Robert Miller, DDS** of Del Ray Beach, FL. With his loss, our profession has lost a highly respected colleague, an

innovative thinker in implant dentistry and a valued member of the AO/OF family.

For many years, Robert was actively engaged in the Academy and contributed significantly to its mission of advancing the science and practice of implant dentistry. Through his participation in AO committees, educational activities and professional discussions, he consistently helped shape the exchange of ideas that drives progress within our field. His contributions reflected a deep commitment to innovation, clinical excellence and the continuous improvement of patient care.

Beyond his formal roles, Robert was widely appreciated for his collaborative spirit and his willingness to share knowledge. He was closely connected with colleagues across the AO community and internationally, supporting educational initiatives and professional exchange in many regions of the world. His work and teaching activities helped disseminate new concepts and techniques in implant dentistry and strengthened professional networks within our specialty.

Those who had the privilege to work with him remember not only his professional dedication but also the friendship and generosity he extended to fellow members. His presence at AO meetings and activities will be greatly missed.

On behalf of the AO community, we extend our sincere condolences to his family, friends and colleagues. His contributions to implant dentistry and to the Academy of Osseointegration and the Osseointegration Foundation will be remembered with gratitude.



The Role of Occlusion in Interdisciplinary Comprehensive Care

By: Darell Fisher, DDS

My first exposure to occlusion goes back to 1976 at The Ohio State University. In those early years, Dr. Huffman laid the foundation for what would become a lifelong focus – understanding how occlusion influences not only teeth, but function, stability, comfort and predictability.

As I progressed into my general practice residency, I was introduced to Peter Dawson's courses. That education was later strengthened through the Pankey Institute. Each of these experiences contributed to a clearer understanding that occlusion is not merely "bite adjustment" or "how teeth fit together." Occlusion is a biological and mechanical system – one that influences the entire stomatognathic complex.

As my interest deepened, I began searching for the periodontal component that must accompany occlusion if we are to truly treat comprehensively. That search brought me to Dr. Paul Ricchetti, who encouraged me to attend the Nevins and Kramer classes in Boston. Those experiences helped connect occlusion to the supporting structures – bone, tissue and attachment – and to the long-term consequences that follow when those relationships are ignored or misunderstood.

The interdisciplinary component expanded. Adding orthodontics with Dr. Michael Sabat and oral surgery with Dr. Eric Fried helped complete the framework. We now have a collaborative team that can integrate restorative dentistry, periodontics, orthodontics and oral surgery – each discipline contributing to a shared goal: improved outcomes with long-term stability.

Whether we are managing an all-tooth-supported dentition, an all-implant-supported dentition or a combination of teeth and implants, we must embrace fundamentals before any definitive treatment decisions are made. And at the center of those fundamentals is occlusion.

Occlusion Starts Before the Teeth

To understand occlusion properly, we must begin by evaluating the entire face – not simply the teeth. Symmetry (or lack of symmetry), skeletal relationships, joint health and muscle function all influence what is possible and what will remain stable over time.

We evaluate the TMJ and range of motion. We assess pain, crepitus, clicking or limitations. We identify parafunctional habits – bruxing, grinding and clenching – and the muscular effects of those habits. We consider airway issues. We evaluate smile dynamics: lips together at rest, repose and full smile. We note tooth display, gingival display and the smile line.

These evaluations are not cosmetic observations – they are diagnostic necessities. They influence the occlusal scheme, the position of teeth, the functional envelope and the long-term success of treatment.

The Occlusal Evaluation: What We Look For

Once the facial and functional foundation is understood, we focus directly on the occlusion.

We begin by evaluating the occlusal relationship and looking for a Class I cuspid and molar relationship. In my experience, Class I cuspids are paramount to results and predictable function. When cuspids are not positioned or functioning appropriately, compensations frequently develop elsewhere in the system.

We evaluate centric relation and its relationship to maximum intercuspation. Ideally, centric relation equals maximum intercuspation in a repeatable position, with no prematurities – no "hit and slide." We want stable centric stops on all teeth, ideally in cusp-fossa contacts that vertically load posterior teeth. We want lighter contact on anterior inclines and no fremitus on anterior teeth.

We evaluate overbite and overjet to establish appropriate anterior guidance. In lateral excursions, we want cuspid guidance discluding all posterior teeth from interferences and, in excursions beyond the cuspid (crossover), we want anterior incisal contact without any posterior interferences. In protrusive movement, the incisors should disclude all other teeth. These principles reduce destructive forces, protect posterior teeth and restorations, and support a stable functional system.

We also evaluate evidence of occlusal dysfunction: wear patterns of incisal edges and cusp tips, wear facets and occlusal breakdown. We assess mobility and distinguish physiologic mobility from pathologic mobility. We identify primary occlusal trauma versus secondary occlusal trauma and evaluate these forces relative to attachment loss and tooth structure loss.

Occlusion is not evaluated in isolation. We must also account for tooth-size discrepancies; tooth proportions (width versus length); rotations, tipping and crowding; irregular incisal edges; and the overall harmony of the arch form. We evaluate arch coordination, the occlusal plane, marginal ridge relationships, cemento-enamel junction levels, root alignment, the number of teeth present and the quality of each tooth – individually and collectively.

Teeth, Implants and Combination Dentitions

A critical question today is: How does this differ when we treat all teeth, all implants or a combination of teeth

Continues on page 30

Role of Occlusion...*(continued from page 29)*

and implants? The answer begins with understanding that teeth and implants behave differently under load. Teeth have periodontal ligament proprioception and physiologic movement. Implants do not. Bone quality, tissue thickness, implant position, occlusal scheme and force direction become even more significant in implant-supported cases.

But regardless of whether we are restoring teeth, implants or both, the same principle holds true: We must evaluate the entire system and design the occlusion intentionally. When occlusion is ignored, even excellent dentistry can fail. When occlusion is respected, comprehensive interdisciplinary treatment becomes more predictable.

Treatment Planning Is Not “One Size Fits All”

After evaluating these factors and determining their impact, the treatment plan becomes highly specific to the individual patient. It cannot be a one-size-fits-all thought process.

In an interdisciplinary environment, the ability to discuss, visualize and coordinate treatment is invaluable. It clarifies the plan and improves predictability. Many questions cannot be definitively answered without preliminary steps and reevaluation.

The Power of Provisionalization

For me, one of the most significant tools in this process has been provisionalization.

Provisionals answer questions in a definitive way: what we have, what we may need and how we accomplish our initial vision – starting with the end in sight. Provisionals help us test function, esthetics, phonetics, occlusal comfort, patient acceptance and oral hygiene compliance. They allow us to validate the occlusal design before committing to definitive restorations.

However, all of this is futile if the patient’s desired outcome is not determined and accepted from the beginning. When the patient experiences beautiful, functional provisionalization that matches the desired outcome, they become receptive to the next steps required to achieve the definitive results they seek.

Looking Ahead

In subsequent issues, I plan to expand on how we definitively determine hopeless versus hopeful teeth, what may or may not represent a terminal dentition and how experience can shape bias in these decisions. I will also reflect on what I’ve learned over 46 years – more than 35 with implants – by reviewing documented cases, identifying what worked and what didn’t, and discussing how we might approach similar situations today.

But the foundation of that discussion remains the same: predictable, comprehensive interdisciplinary dentistry in which occlusion is an integral part.



Upcoming AO Webinars

Tuesday, June 9 • Noon EDT

Re-Evaluating Mandibular Two-Implant Overdentures: The McGill Consensus and Beyond

Jocelyne Feine, DDS, MS, HDR

Tuesday, June 23 • Noon EDT

Adjunctive Bone Therapies for Dental Implants: When the Classic GBR Is Not Enough

Paulo Zupelari Concalves, DDS, MSc, PhD

Tuesday, August 18 • Noon EDT

Bone Lid Technique: Modern Concepts and Applications

Giulia Brunello, DDS

Thursday, September 10 • Noon EDT

Tunnel Variants Uncovered: Deciding the Best Approach for Mandibular Recession Coverage

Zhaozhao Chen, DDS, MS, PhD

Tuesday, September 29 • Noon EDT

Bio-engineering in Peri-implant Soft Tissue Management: Emergence Profile in Daily Practice

Cem Yildiz, DDS, PhD

Friday, October 2 • Noon EDT

Emerging Leaders Webinar: Recent Updates in Maxillary Sinus Augmentation

Shi Yin, DDS, MS

John Adams, Dave Cowens, Shemp Howard...and Me

By: Paul Fugazzotto, DDS, Academy News Editor

John Adams, who helped establish the U.S. Navy and is generally considered to have been a very good president, had the misfortune of following George Washington, the "Father of America."

While Dave Cowens won the NBA MVP Award in 1973 and NBA championships in 1974 and 1976, his accomplishments paled beside those of the man he replaced: Bill Russell, the winningest basketball player - and sports figure in general.

Moe Howard, Larry Fine and Curly Howard were arguably the greatest comedy trio of all time. Upon Shemp Howard's return (yes, he was one of the original Stooges and had "gone solo") following Curly's fatal stroke, the Stooges continued to perform at a high level. However, Moe-Larry-Shemp could not match the magic of Moe-Larry-Curly.

And now...I must attempt to succeed **Mehrdad Favagehi** as editor of the *Academy News* - undoubtedly the most daunting task of all.

Immediately upon entering the room where I would attend my first AO Newsletter Committee meeting, I was struck by a sense of calm: The lack of jockeying for position, the absence of "power units" of mini-committees within the committee. This was a direct result of Mehrdad's desires and design.

There were no special seats to be had, as all members were on equal footing. There had been no ego-stroking, backdoor deals made prior to the meeting. Mehrdad's only goal was the production of the highest-quality newsletter possible - a newsletter that all members would find stimulating and useful. Mehrdad is uniquely suited to attain these goals through:

- Making all committee members feel their opinions matter
- Ensuring that everyone's voice is heard
- Having everyone offer opinions and contribute
- Raising the bar of the discussion when it falters
- Daring to think outside the box
- Asking for and listening to disparate viewpoints
- Demonstrating strong, but not overpowering, leadership skills



Now what? How to move the *Academy News* forward when it has been under the guidance and tutelage of an editorial Olympian?

While we will, of course, attempt to maintain everything Mehrdad has established, we hope to add the following rooms - and others - to Mehrdad's mansion:

- Original articles from a greater swath of AO members
- Point-counterpoint articles discussing controversial subjects
- Real-world articles discussing the business of clinical dentistry
- Themed issues
- "Mini-symposia" on select topics
- Dental Auxiliary articles
- Laboratory Technician contributions
- Interviews with both "recognized giants" and "overlooked heroes"

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Dr. Paul Fugazzotto



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