The Next 100 Years: Residents Imagine the Future of Their Specialty

By: Dr. Marian Wolford

As we reflect on a century of progress in orthodontics, we also look ahead to the people who will shape its future. To gain insight into what the next generation envisions for our specialty, we invited orthodontic residents from the GLAO region to share their perspectives on the opportunities, challenges, and changes that may lie ahead.

From technological advancements and expanding access to care to the importance of clinical judgment and patient relationships, each resident brings a unique perspective. We posed a series of questions about the future of orthodontics, and here is what they had to say.

The Orthodontist of the Future

How do you envision the role of the orthodontist evolving over the next hundred years?

Orthodontics is a constantly evolving field. While foundational principles remain unchanged, diagnostic tools, materials, and philosophies have changed many times over the last century. It is reasonable to assume that orthodontics will continue to change and look even more dissimilar 100 years from today. New technology, further advances in artificial intelligence, and materials will continue to change how we treat patients from start to finish. We may be able to diagnose issues in growth and development earlier, better predict treatment outcomes, and make treatment more efficient and comfortable for patients once it is delivered.

While the details have yet to become established, we know for certain that the role of the orthodontist will continue to extend beyond simply straightening teeth. Because no two patients are exactly alike, successful treatment can become highly specific when more complex issues arise. This is augmented by advances in the field, making our clinical judgment and the ability to understand each patient's individual needs even more important. Furthermore, this positive feedback loop emphasizes the importance of strong communication and building trust with our patients.

As residents, we are still learning how much there is to orthodontics. We are excited to know that the way we practice will continue to change, and as future orthodontists, we need to be willing to evaluate new information and adapt our practice throughout our careers. Ultimately, technology may change how we practice, but the responsibility to provide thoughtful, individualized care will remain at the center of what we do.

Dr. Tommy Lau and Dr. James Needy
The Ohio State University College of Dentistry

Artificial Intelligence

How do you believe artificial intelligence will influence orthodontic diagnosis, treatment planning, and clinical decision-making?

Overall, I think AI has the potential to make orthodontic treatment more predictable and hopefully, more efficient, especially in challenging cases. Some ways this could materialize include simulations based on real patient data to predict and help patients visualize treatment outcomes, including changes to smile aesthetics or soft-tissue profiles for surgical cases, or aiding in the design of custom appliances alongside advances in direct-printing technologies.

By drawing on more patient records than any individual doctor could ever hope to evaluate in a single lifetime, AI also has the potential to augment the diagnostic capabilities of individual providers. Challenges to achieving desired outcomes based on individual variations in things such as tooth morphology, bone density or any number of other factors, which may have otherwise been overlooked, could potentially be surfaced by AI. Similarly, models trained locally on a provider's own cases could streamline clinical decision-making by identifying those cases which require closer attention and those which are more straightforward.

More speculatively, with companies already paying people to provide first-person recordings for AI task training, one could envision AI eventually making inroads into the physical world within an orthodontic clinic. With the right guardrails and governance in place, this could potentially help alleviate some of the staffing challenges faced by orthodontic practices today. How quickly these possibilities become clinical realities remains to be seen, but the potential to make orthodontic care more individualized, predictable, and efficient makes this an exciting area to follow as the technology continues to mature.

Dr. Waseem Mir
University of Pittsburgh School of Dental Medicine

Evidence, Innovation, and Ethics

How should orthodontists evaluate emerging technologies and treatment approaches while continuing to provide ethical, evidence-based care?

I believe that evaluating emerging technologies and treatment approaches requires balancing scientific evidence, ethical responsibility, and clinically driven innovation. As orthodontists living in a world pervaded with artificial intelligence, we must validate new approaches through high-quality research, while considering effectiveness, safety, stability, cost, and patient-centered outcomes. When evidence is limited, we must recognize those limitations and distinguish treatments supported by established evidence from promising innovations.

As a second-year resident, I would encourage the incoming class of orthodontic residents to stay curious while acknowledging the limits of current evidence. History demonstrates that while innovation can advance our specialty, new technologies should not be immediately prescribed to the masses or adopted as indispensable. Ultimately, our responsibility is not simply to adopt the newest technology, but to thoughtfully determine when it improves patient care and remain willing to revise our approach as stronger evidence emerges.

Dr. Matthew Woods
Case Western Reserve University School of Dental Medicine

Access to Orthodontic Care

What innovations or changes could make high-quality orthodontic care more accessible to underserved or geographically isolated populations?

Improving access to high-quality orthodontic care in underserved or geographically isolated communities requires a combination of technological advancements, innovative delivery models, and financial incentives.

Digital workflows incorporating intraoral scans, digital radiographs, customized bracket placement, and prescription archwires can significantly reduce chair time and the number of in-person appointments. Companies such as LightForce and SureSmile utilize 3D printing and robotic technologies to create customized appliances, improving treatment efficiency while maintaining quality care.

Additionally, digital treatment planning and remote monitoring through patient-submitted photographs allow orthodontists to evaluate treatment progress without requiring frequent office visits. Mobile orthodontic units and satellite clinics could further expand access by allowing orthodontists to travel to rural communities on a scheduled basis, such as one week per month.

Establishing local diagnostic imaging centers and utilizing treatment modalities requiring fewer appointments or emergency visits, such as clear aligners when appropriate, could make these services more practical and sustainable.

Finally, implementing student loan forgiveness programs for orthodontists who commit to serving underserved communities could address another significant barrier: the financial burden of dental education. Similar to incentives offered to general and pediatric dentists, partial loan forgiveness based on years of service could encourage orthodontists to practice in areas where specialized care is limited.

Together, these strategies could reduce geographic and financial barriers, improve treatment efficiency, and expand access to high-quality orthodontic care for underserved populations.

Dr. Ariana White
University of Detroit Mercy School of Dentistry

The Human Side of Care

How can orthodontists preserve meaningful patient relationships and individualized care as technology becomes more integrated into clinical practice?

The greatest advancement in orthodontics will mean little if we lose the human connection that makes patients feel heard, valued, and cared for.

Technological advancements such as AI, digital imaging, intra-oral scanner and computer-assisted treatment planning enhance efficiency and precision. These should complement, not replace, clinical judgment and meaningful patient relationships.

Patients may not remember every detail of their treatment, but they will remember how we made them feel. Taking time to listen, address concerns, and involve patients in decisions builds trust. Simple gestures, such as remembering personal details, celebrating treatment milestones, or reassuring anxious patients, can make a lasting difference.

Orthodontic treatment is a long-term commitment; this makes rapport especially important when complications, delays, or unexpected outcomes arise. Strong relationships encourage communication, cooperation, and confidence in care.

Personalized care requires empathy and flexibility. Some patients may have unique circumstances like demanding schedules, travel distances, financial constraints and personal preferences. Understanding individual circumstances demonstrates genuine concern.

Furthermore, technology cannot replace comprehensive history-taking and clinical examination, which may reveal underlying concerns requiring treatment modifications or specialist referrals. AI-generated recommendations must also be evaluated within each patient's clinical and personal context.

Ultimately, combining technological innovation with empathy, sound clinical judgment, and individualized care strengthens patient satisfaction, builds lasting relationships, and encourages referrals from family and friends.

Dr. Omolara Obilade
Schulich School of Medicine & Dentistry, Western University

The Greatest Opportunity and Challenge

What do you believe will be the greatest opportunity and the greatest challenge facing your generation of orthodontists?

Perspective One: Integrating Technology While Preserving Clinical Judgment

I believe the greatest opportunity and challenge facing the next generation of orthodontists will be the integration of artificial intelligence (AI) and automation into clinical practice.

Advancements in AI have the potential to transform nearly every aspect of orthodontics, from diagnosis and treatment planning to progress monitoring and patient communication. These technologies may improve diagnostic accuracy, treatment efficiency, and clinical predictability while allowing orthodontists to dedicate more time to complex cases and meaningful patient interactions.

However, I believe the greatest challenge will be learning to effectively incorporate these advancements without becoming overly reliant on technology. As AI becomes increasingly capable of automating clinical processes, orthodontists must continue to develop the clinical judgment, critical thinking, and biological understanding necessary to recognize when technology supports or compromises patient care.

As a resident entering the specialty, I see an exciting opportunity to help shape how these technologies are integrated into orthodontics. Ultimately, I believe the most successful orthodontists of the next generation will be those who embrace innovation while preserving the human element of our profession. Technology should enhance our ability to provide exceptional care, not replace the clinical expertise, individualized decision-making, and doctor-patient relationships that define orthodontics.

Dr. Joshua D. Bussard
Indiana University School of Dentistry

Perspective Two: The Future of Orthodontic Specialization

We believe AI and digital technology will be our greatest opportunity. Tools like AI-assisted diagnosis, digital treatment planning platforms like LightForce, and DIBS AI enable us to plan more precisely, treat more efficiently, and reach a broader patient base than any generation before us.

However, our greatest challenge is that the same technology can make the specialty seem optional. With AI support, more general dentists may feel more confident taking on complex cases. Consequently, many patients may arrive having already consulted an AI about their diagnosis and treatment, sometimes with inaccurate or overly simplified expectations.

Furthermore, the growing emphasis on airway orthodontics is attracting more dentists into the field. This influx of dentists may lead some families to believe that orthodontics alone can address breathing or sleep problems that require a comprehensive team approach involving ENT specialists and sleep physicians.

Dr. Michael R. Davis
Seton Hill University Center for Orthodontics

What Must Never Change

As orthodontics evolves over the next hundred years, what fundamental value, skill, or tradition do you believe the specialty must preserve?

Over the next hundred years, nearly everything about orthodontic practice will change: the appliances, the imaging, the software, even the way patients find a provider. What must never change is the specialty's commitment to diagnosis-driven care, grounded in biology and delivered in the patient's best interest.

Teeth move through living bone and soft tissue, in faces that grow and age, in patients with their own goals and health histories. No technology changes that reality. A treatment plan generated in seconds is only as good as the judgment of the clinician who reviews it, questions it, and takes responsibility for it. The orthodontist's value has always rested on understanding why a malocclusion exists, what treatment it actually needs, and when the best choice is to wait or not to treat at all.

A century from now, the question asked at the start of every case should remain unchanged: why is this patient seeking care, and what treatment can safely serve those goals? As long as orthodontists keep asking it, the next hundred years will honor the last.

Samarth Setru
University of Michigan School of Dentistry

The Future Is in Their Hands

The perspectives shared by these residents offer an encouraging glimpse into the future of orthodontics. Although their answers reflect different interests and concerns, they share a sense of curiosity and dedication to the profession they are preparing to enter.

As they begin their careers, these future orthodontists will have the opportunity to build upon the accomplishments of previous generations, introduce new ideas, and help determine how the specialty continues to evolve.

We thank each of these residents for sharing their thoughts and look forward to seeing the contributions they will make to orthodontics in the years ahead.

Contributing Residents: Tommy Lau (The Ohio State University College of Dentistry), James Needy (The Ohio State University College of Dentistry), Waseem Mir (University of Pittsburgh School of Dental Medicine), Matthew Woods (Case Western Reserve University School of Dental Medicine), Ariana White (University of Detroit Mercy School of Dentistry), Omolara Obilade (Western University Schulich School of Medicine & Dentistry), Joshua D. Bussard (Indiana University School of Dentistry), Michael R. Davis (Seton Hill University Center for Orthodontics), and Samarth Setru (University of Michigan School of Dentistry)