

DMD Student Oral Presentations (Samson 176):

Luke Hisiger, Class of 2028

Mentor: Dr. Aaron Weinberg, Biological Sciences

BDI-Fluorescence Immunoassay: a Rapid Noninvasive Oral Cancer Detection Test

Oral squamous cell carcinoma (OSCC), which claims the lives of hundreds of thousands of people worldwide every year, is currently diagnosed by a costly, painful, and often overused procedure involving a scalpel biopsy. Previously, we have shown that the beta-defensin index (BDI) is a functional biomarker that can be used to detect oral OSCC by measuring the ratio of human beta-defensin-3 over human beta-defensin-2 in a lesion compared to a control site in the same patient. We have designed a BDI determining prototype fluorescent-immunoassay (FIA) rapid test, and envision that as a non-invasive and low-cost screening tool, it will help the clinician determine who needs a biopsy, and fulfill a major unmet need in low-and middle-income countries where oral cancer is highly prevalent, yet laboratory/pathology services are lacking.

Alex Matthews, Class of 2027

Mentor: Dr. Sena Narendran, Community Dentistry

Dental Hygienists' Support for Dental Therapists Proposed Scope of Practice

Acceptance and support for dental therapists (DTs) varies greatly among dental professionals; in Ohio, dental hygienists demonstrate relatively low awareness of DTs but express moderately high overall support for the role. This study examined whether this support extends to specific functions and procedures within the DTs' scope of practice. Findings indicate that dental hygienists show strong acceptance of non-operative tasks performed by DTs; however, support declines significantly for operative procedures

Ananta Bijoy Datta, Class of 2028

Mentor: Dr. Dale Baur, Oral and Maxillofacial Surgery

Patient-Centered Quality of Life Measures After Alloplastic Total Temporomandibular Joint Replacement

We surveyed 33 patients who had undergone total alloplastic TMJ replacement to examine how the surgery affected their quality of life. Patients reported significant improvements in pain, diet, mood, anxiety, as well as their overall quality of life following the surgery.

Anne Libin, Class of 2028

Mentor: Dr. Pushpa Pandiyan, Biological Sciences

Modulation of Schwann Cell Myelination Proteins by Amphiregulin

Schwann cell (Sc) activity can play a tumorigenic role in Oral Squamous Cell Carcinoma (OSCC) progression through perineurial invasion (PNI). Amphiregulin (AREG), an EGFR ligand expressed in the tumor microenvironment, may modulate Schwann cell behavior. This study investigates how AREG expression affects Sc myelination proteins, including MPZ and MAG, providing insight into their potential role in PNI and tumor-associated nerve interactions.

DMD Student Poster Presentations (Samson South Winter Garden)

Makayla Hanegan Birrell and Leonarda Miletić, Class of 2027

Mentor: Dr. Scott Pelok, Comprehensive Care

Longevity and Complication Rates of Porcelain Veneers Compared to Direct Composite Bonding: A Systematic Review

This systematic review and meta-analysis compared the survival rates, complications, and patient-reported outcomes of ceramic veneers and direct composite bonding. Ceramic veneers demonstrated higher and more predictable survival rates, while composite veneers showed greater variability but offered advantages in reparability. These findings highlight the importance of balancing durability and patient-centered considerations when selecting esthetic dental treatments.

Claire Campbell, Class of 2027

Mentor: Dr. Elena Furman, Periodontics

Preoperative Vitamin D Screening Trends Among Dental Practitioners In Ohio

This study examines current trends in preoperative vitamin D screening among Ohio dental practitioners and its perceived role in treatment planning and surgical outcomes for extractions, implants, and bone augmentation. Survey results suggest that while most respondents recognize vitamin D as relevant to prognosis and healing, screening practices remain inconsistent due to limited awareness, cost concerns, and lack of standardized guidelines. The findings highlight a need for increased education and evidence-based protocols for vitamin D screening in dental surgical care.

Farhan Choudhary, Class of 2028

Mentor: Dr. Andres Pinto, Oral and Maxillofacial Medicine and Diagnostic Sciences

The Impact of Oral Nicotine Pouch Use on Mucosal Tissue and Periodontal Health in Young Adults: A Scoping Review

We conducted a PRISMA-guided scoping review to evaluate the effects of non-tobacco oral nicotine pouches on oral mucosal and periodontal health in young adults. Evidence suggests potential for localized gingival recession and inflammation at sites of pouch contact, with effects differing from e-cigarettes and traditional smokeless tobacco. However, the current literature is limited and heterogeneous, highlighting the need for higher-quality longitudinal studies to clarify clinical and public health implications.

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Zayd Khan, Class of 2028

Mentor: Dr. Ali Syed, Oral and Maxillofacial Medicine and Diagnostic Sciences

Marginal Bone Loss Following Dental Implant Placement: A Retrospective Radiographic Pilot Study

This retrospective radiographic study assessed marginal bone level changes around dental implants using baseline and follow-up periapical radiographs. Mesial and distal bone levels were measured to evaluate early peri-implant bone remodeling and implant success within the first year after placement. The study provides preliminary data on peri-implant bone stability in a clinical population.

Nolan Kranc, Class of 2027

Mentor: Dr. Keith Schneider, Oral and Maxillofacial Surgery

Surgical Indications for Fibrous Dysplasia in the Immature Skeleton

This poster evaluates the clinical indications, associated risks, and outcomes of surgical management of fibrous dysplasia (FD) prior to skeletal maturity. Surgical decision-making in craniomaxillofacial FD is particularly challenging before completion of facial growth, and this work presents a narrative review of cases in which operative intervention was undertaken in the immature skeleton.

Patrick Mansour, Class of 2027

Mentor: Dr. Mercurious Mina, Periodontics

Evaluating Accuracy of Robotic-Assisted Dental Implant Placement Using Superimposed Scans

This retrospective study evaluated the accuracy of robotic-assisted dental implant placement using the Yomi system, finding a mean angular deviation of 5.3° and demonstrating clinically acceptable precision through 3D superimposition analysis of pre- and postoperative scans.

Ria Movalia, Class of 2027

Mentor: Dr. Ali Syed, Oral and Maxillofacial Medicine and Diagnostic Sciences

Enhancing Dental Education and Diagnosis with apoQlar VR Technology

This study introduced apoQlar, a virtual reality application, to enhance CBCT-based diagnosis and treatment planning in dental education. Using five anonymized endodontic patient cases, the platform enabled immersive three-dimensional visualization of complex root canal anatomy, periapical pathology, and anatomical variations beyond conventional 2D radiographs. The findings suggest that mixed-reality technology can improve diagnostic confidence and clinical decision-making in dental students and residents.

Mark Piroutek, Class of 2026

Mentor: Dr. Elena Furman, Periodontics

Platelet-Rich Fibrin (PRF) Application and Education in U.S. Graduate Programs: A Cross-Sectional Study

Conducted a cross-sectional study assessing the application and education of Platelet-Rich Fibrin (PRF) in U.S. graduate periodontics, endodontics, and oral and maxillofacial surgery programs, identifying utilization patterns, training methodologies, and barriers to adoption.

Dylan Sosnoswsky, Class of 2027

Mentor: Dr. Dale Baur, Oral and Maxillofacial Surgery

Comparison of Bicortical Screws and Plates in Bilateral Sagittal Split Osteotomy (BSSO)

We conducted a retrospective chart review of patients who underwent bilateral sagittal split osteotomy (BSSO) at Case Western Reserve University (2018–2025) to compare postoperative complications between miniplate and bicortical screw fixation. Complication outcomes were assessed at 6 months or longer, including pain/swelling, infection, wound dehiscence, neurosensory changes, and the need for hardware removal. This study aims to evaluate and clarify fixation-related morbidity to help guide surgical decision-making and optimize patient recovery.

Brock Van Alfen, Class of 2028

Mentor: Dr. Dale Baur, Oral and Maxillofacial Surgery

Medication-Related Osteonecrosis of the Jaw: A Retrospective Study

We surveyed 33 patients who had undergone total alloplastic TMJ replacement to examine how the surgery affected their quality of life. Patients reported significant improvements in pain, diet, mood, anxiety, as well as their overall quality of life following the surgery.

Graduate Student Poster Presentations (Samson South Winter Garden)

Hounein Arbaji, Endodontics, Class of 2027

Prevalence of Cracked Teeth in Patients with Psychiatric Conditions and the Impact of Psychotropic Medications: A Retrospective Cohort Study

We conducted a retrospective chart review of 471 adult patients (ages 18–60) with documented psychiatric diagnoses treated in an endodontic clinic (Jan 2021–Apr 2025) to determine the prevalence of cracked teeth and evaluate associations with psychotropic medication classes. Cracked teeth were present in 14.86% of patients, and SNRI (Serotonin and norepinephrine reuptake inhibitors) use was significantly associated with cracked teeth, with SNRI users showing higher odds compared to non-SNRI users.

Miguel Ascencio, Endodontics, Class of 2026

Periodontal Probing Depths Before and After Anesthesia In Teeth Presenting For Primary Endodontic Treatment

Accurate periodontal probing is critical in patients undergoing endodontic treatment, as periodontal status can significantly affect prognosis and treatment planning. Post-anesthesia probing aids in preventing the unnecessary treatment of undiagnosed cracked teeth, thereby improving case selection and overall endodontic success rates.

Namrata Gulzar Bhatti, Endodontics, Class of 2027

The Prevalence of TMD in a Postgraduate Endodontic Clinic

This study estimated the prevalence of temporomandibular disorder (TMD) symptoms using the validated 6Q-TMD screener and evaluated associations with endodontic diagnoses. A retrospective chart review of 105 patients referred to a postgraduate endodontic clinic found that 36.2% screened positive (score ≥ 3). TMD screener positivity was significantly associated with symptomatic apical periodontitis (OR = 3.01, $p = 0.009$), and several individual screener items correlated with specific pulpal or periapical diagnoses. The estimated true TMD prevalence was 34.6% based on published sensitivity and specificity values; other estimates drawn from pain-focused populations produced invalid results due to low specificity. Importantly, this study estimated symptom prevalence using a screener, whereas prior studies used formal diagnostic criteria. The observed prevalence was significantly lower than in pain-focused endodontic cohorts ($Z = -4.09$, $p < 0.001$; $Z = -3.24$, $p = 0.001$), significantly higher than North American population estimates ($Z = 2.38$, $p = 0.017$), and not significantly different from global pooled rates ($Z = 0.48$, $p = 0.631$).

Zayan Khan, Endodontics, Class of 2027

Exploring the Relationship between Compassion and Burnout Among Endodontists

Burnout continues to pose a major challenge within the dental profession, affecting clinical performance, emotional health, and patient outcomes. This study explored whether higher levels of compassion, expressed through empathy, were associated with reduced burnout among practicing endodontists in the United States.

Laurel Leavitt, Endodontics, Class of 2026

Patient Anxiety after Post-Anesthesia Cold and Percussion Testing of Teeth with Symptomatic Irreversible Pulpitis and Symptomatic Apical Periodontitis

We are surveying patients of the CWRU Endodontics Clinic to quantify whether post-anesthesia cold and percussion testing reduces patient anxiety in patients with SIP and SAP. Preliminary data suggests that this strategy may reduce patient anxiety.

Mark S. Mekhail, Endodontics, Class of 2028

The Oral Battlefield: Dental Management of Patients Undergoing Immunotherapy

This poster highlights the dental considerations and oral complications associated with immunotherapy, chemotherapy, and head and neck radiation, emphasizing the dentist's role in prevention and management. It summarizes key conditions such as mucositis, candidiasis, radiation caries, and osteoradionecrosis, along with practical strategies for supportive and prophylactic care. Overall, it aims to equip dental professionals to safely and effectively care for patients undergoing cancer immunotherapy and related treatments.

Sean Noohpisheh, Endodontics, Class of 2026

Practice Setting and Psychosocial Outcomes Among Endodontists: The Human Side of Endodontics

The purpose of this study is to better understand how factors such as burnout, autonomy, job satisfaction, psychological safety, compassion, work conditions, and career outlook vary across private practice, DSO/corporate, and academic environments. By identifying the workplace elements that support or challenge clinician well-being, we aim to highlight opportunities for improving professional satisfaction and long-term sustainability within our specialty.

Lana Shoukair, Endodontics, Class of 2027

Referral Patterns to Endodontists: Analyzing Influencing Factors and Potential Changes Over the Past Decade

This study examined factors influencing general dentists' referrals to endodontists and how these patterns have evolved since prior research. A survey of Ohio general dentists found that referral decisions vary by demographics and practice type, with younger dentists prioritizing digital presence and accessibility, female dentists emphasizing anxiety management, and most respondents valuing advanced technology such as CBCT and microscopes. Overall, while clinical skill and communication remain essential, referral trends reflect a generational shift toward technology, transparency, and digital engagement.