

# HARVARD

## School of Dental Medicine

### OFFICE OF RESEARCH

## ***H-CRESENT Program Receives \$4.4 Million NIDCR Grant to Train the Next Generation of Clinician-Scientists***

A collaborative initiative, led by Harvard School of Dental Medicine (HSDM), recently received \$4.4 million in funding over the next five years from the National Institute of Dental and Craniofacial Research (NIDCR) to establish a novel clinical practice-based research network to train future clinician-scientists.

Known as the Collaborative Clinical Practice-based REsearch Program for DENTal Schools (H-CRESENT), the initiative will bring together a consortium of community health centers and academic partners including the Cambridge Health Alliance, Charles River Community Health, Harvard Catalyst, Massachusetts College of Pharmacy and Health Sciences, Meharry Medical College, and the University of New England.

“H-CRESENT is an exciting partnership that will leverage our collective expertise and commitment to fostering a culture of scientific inquiry, encouraging scientific partnerships between students and research faculty, and stimulating clinical research pursuits across HSDM and collaborating sites,” said HSDM Dean William Giannobile, who will serve as Principal Investigator (PI).

Students and faculty who participate in the H-CRESENT program will have the chance to engage in training opportunities throughout the consortium. They will participate in clinical research, take courses developed for H-CRESENT which supplement courses in their respective programs, and be part of diverse “learning pods” where they will engage with other students, faculty mentors, and subject matter experts.

“This will have a significant and tangible impact on various aspects of dental education that can lead to the development of innovative teaching approaches, curriculum enhancements, and the integration of new technologies into dentistry,” said Sang Park, HSDM’s associate dean for Dental Education.

“It can support the creation of educational materials and resources for dental students that enhance the learning experience, as well as the training and professional development of dental educators, ultimately leading to the improvement of dental education programs and the quality of instruction provided to students.”

H-CRESENT will bridge teaching, learning, and clinical research. Learning pods will allow for a mentoring on multiple levels, with the hope that the pods will evolve into long-term research partnerships. H-CRESENT will give predoctoral students and residents the opportunity to



Dean William Giannobile's H-CRESENT program received funding to establish a novel clinical practice-based research network to expose dental students to clinical research earlier in their training.

delve into research earlier in their dental training; faculty new to clinical research will engage with methodological experts; and senior researchers will receive instruction on mentoring and leadership.

“This funding will provide more opportunities for students become engaged in research during their clinical training program, which is so exciting and synergistic with the mission of HSDM,” said Jennifer Gibbs, associate professor and director of the Division of Endodontics in Restorative Dentistry and Biomaterials Sciences.

Participants will get hands-on experience with clinical research in a multi-site study developed by Gibbs. The study will evaluate factors that might influence post-operative pain resolution after certain dental procedures including root canals, tooth extractions, periodontal surgeries, dental implants, and other procedures.

“Ultimately, we could create an algorithm that can predict which patients will have severe pain or slowly resolving pain after dental procedures. This large multi-centered study will help to give dentists the knowledge in the future to identify those rare patients who experience disproportionate amounts of pain after dental procedures,” said Gibbs.

Prospective students for the first H-CREDENT cohort will be recruited in the fall of 2023 through outreach efforts to dental schools nationwide.

## ***HSDM Researchers among most cited worldwide in 2022***

**Twelve HSDM faculty members were among the top 2% of most cited researchers worldwide in 2022, according to the 2023 Stanford-Elsevier Ranking database.** The database provides standardized information on citations, h-index, co-authorship adjusted hm-index, citations to papers in different authorship positions and a composite indicator (c-score).

There are six faculty members from the Department of Oral Medicine, Infection, and Immunity (Drs. Roland Baron, William Giannobile, Magda Feres, Myron Nevins, Lorenzo Tavelli and Sook Bin Woo), four from the Department of Developmental Biology (Drs. Bjorn Olsen, Howard Cedar, Vicki Rosen and Yingzi Yang), and two from the Department of Restorative Dentistry and Biomaterials Sciences (Drs. German Gallucci and Julia Gabriela Witneben).



# Goldhaber Award Honors Distinguished Craniofacial Researcher

Dr. Yang Chai, a leader in the field of craniofacial development, has been named this year's Goldhaber Award recipient. The Goldhaber Award recognizes an individual who is held at the highest international esteem in their field related to oral and systemic health. The award was established in 1989 in honor of former HSDM dean Dr. Paul Goldhaber, a periodontist and researcher, upon the completion of his 22 years of service to the School. It is presented annually at HSDM during the Goldhaber Lecture.

Chai is University Professor and George and MaryLou Boone Chair in Craniofacial Biology at the University of Southern California (USC). He also serves as Director of the Center for Craniofacial Molecular Biology and Associate Dean of Research at the Herman Ostrow School of Dentistry at USC.



Dr. Yang Chai was the 2023 winner of the Goldhaber Award for his contributions as a researcher and clinician exploring craniofacial development and birth defects.

Selected for his prominent contributions as a craniofacial researcher and clinician, Chai is most noted for his groundbreaking work exploring craniofacial development and birth defects. His research has transformed the field and led to the successful restoration of cleft palate in mouse embryos. He also studies stem cells and is currently using innovative 3D-printed scaffolds seeded with stem cells to regenerate tissue for patients who have lost bone due to trauma, congenital defects, or disease.

"Dr. Chai is a distinguished leader in dental and craniofacial research, and we are delighted to present him with the 2023 Goldhaber Award," said Dr. Yingzi Yang, Associate Dean for Research at HSDM. "He continues to do novel, creative, and cutting-edge basic and translational research."

Chai is a member of both the National Academy of Medicine and of the American Academy of Arts and Sciences. His research has been continuously funded by the National Institutes of Health for more than 25 years. Chai's transformative work has earned him multiple awards, including the 2011 International Association of Dental Research Distinguished Scientist Award.

On October 17, Chai shared his experience, "From a Clinician to a Clinician-Scientist: My Journey in Craniofacial Development and Regenerative Medicine," during the annual Paul Goldhaber Lecture.

Past recipients include Eiko Sairenji (1990), Joseph Henry (1991), Jens Pindborg (1992), Harold Loe (1994), Ron Gibbons (1995), Jeanne Sinkord (1996), Robert Gorlin (1997), Robert Ledley (1998), Harold Slavkin (1999), Gideon Rodan (2000), John Greene (2001), Marjorie Jeffcoat (2002), Charles Bertolami (2003), Sigmund Socransky (2004), Walter Cohen (2005), George Zarb (2006), Robert Genco (2007), Lawrence Tabak (2008), Per-Ingvar Branemark (2009), Irma Theslef (2010), Martha Somerman (2011), John Greenspan (2012), Ray Williams (2013), Takano Yamamoto (2015), Laurie McCauley (2016), Paul Sharpe (2018), Ichiro Nishimura (2021), and Peter Polverini (2022). No awards were given in 1993, 2014, 2019, and 2020.



# DEPARTMENT NEWS

**HSDM held the inaugural Global Symposium on Artificial Intelligence in Dentistry in early November.** The event featured a keynote speech from Dr. Fernanda Viégas, a principal scientist at Google and the Gordon McKay Professor of Computer Science at Harvard's John A. Paulson School of Engineering and Applied Sciences, a poster session featuring 65 posters from researchers around the world, and numerous other symposia and workshops from leading innovators in the field of oral health.



Dahee Chung, DMD24, holds her poster presentation award with Dean Giannobile and Dr. Hawazin Elani at the Global Symposium for AI in Dentistry.

A number of young investigators were recognized with awards for the poster presentations. Dr. Yi Te (Edward) Lin, a third-year periodontics resident at The University of Pennsylvania School of Dental Medicine, came in first place at the Scientific Poster Award for Student Excellence for his poster "U-Net Deep Learning Model Application in Tooth Extraction and Ridge Preservation Analysis." Dahee Chung, DMD24, a third-year dental student at HSDM, received second place recognition in the Student Excellence award category for her poster "Development of Artificial Intelligence-based Tooth-Prognosis Decision Module for Treatment Planning." The symposium's attendees also voted for their favorite poster presentation, which was by Dr. Mónica Bonfanti Gris, a PhD candidate in Dental Sciences at the Universidad Complutense de Madrid. Her poster was titled "Diagnostic Performance Analysis of AI-based Software Denti.AI for interproximal caries detection on bitewing radiographs and dental structures and treatments in panoramic radiographs."

**The American Academy of Dental Science (AADS) inducted a new class of fellows at its November Spice Night event, and nine of them are current HSDM faculty or alumni.**

The new members include Cataldo Leone, DMSc89, Dr. Suppatriya Chutinan, Dr. Bernard Friedland, Dr. Alejandro Lanis, Dr. Paul Levi, Dr. Luis Lopez, Dr. Hiroe Ohyama, Dr. Dominique Rousson, and Shibani Sahni, MMSc21. The AADS was founded in 1867 with a mission "to promote the cultivation of the science and art of dentistry, sustain and elevate the professional character of dentists and encourage mutual improvement."



**HSDM hosted a group of executives from the oral health care innovation company Sunstar in early November.** During the visit, the guests got an inside look at the School's research labs, the dental clinic, and the Blavatnik Harvard Life Lab. A number of research faculty were also able to share presentations about their work with the hope to establish a collaborative research partnership between the two organizations.

## Developmental Biology

**Dr. Yingzi Yang, the associate dean for research and a professor of Developmental Biology, gave a keynote lecture at the International Research Center for Medical Sciences' Rise of Diversity in Science symposium held at Kumamoto University in Japan.** Yang's speech, "Learning Wnt and Hedgehog signaling from genetic diseases," highlighted her research at HSDM and was well received. On the second day of the symposium, she led a "Power Hour" discussion on improving gender and racial diversity in research. The materials Yang shared were compiled with help from Dr. Fadie Coleman, the assistant dean for Diversity and Inclusion at HSDM.



## Oral Health Policy and Epidemiology



**Dr. Steffany Chamut, an instructor in Oral Health Policy and Epidemiology, recently received recognition as the first dentist to become a Health and Aging Policy Fellow, American Political Science Association Congressional Fellow, and CMS Senior Fellow.** Her work throughout these fellowships culminated in the publication of her manuscript "Oral Health Among Medicare Beneficiaries in Nursing Homes" in *JAMA Network Open*. Additionally, Chamut served as a session chair and speaker at the National Institute on Aging's Oral Health and Alzheimer's and Related

Dementias Workshop. "These accomplishments not only enhanced my academic and professional standing but also raised HSDM's profile in aging and policy engagement," Chamut said about her experiences.

## Restorative Dentistry and Biomaterials Sciences

**On Friday September 29, the Department of Restorative Dentistry and Biomaterials Sciences held the first Alvin Krakow Endodontic Research Symposium at HSDM.** Dr. Krakow was the first endodontic program director at HSDM, and he envisioned creating an endowed research fund specifically for endodontic research. Over the years, the fund has grown and has supported numerous endodontic scholars in completing their research studies at HSDM. The symposium aimed to share new research on the clinical practice of endodontics.



Dr. Anibal Diogenes, Professor and Vice-Chair of the Department of Endodontics at the University of Texas Health Science Center at San Antonio, served as the symposium's keynote speaker discussing the biology of periapical periodontitis. Dr. Pam Yelick from Tufts University presented new findings related to dental pulp regeneration. Dr. Jennifer Gibbs the current HSDM endodontic program director presented on pain resolution after endodontic treatment. Five HSDM alumni, William B. Arden, DMSc21, Ana Cristina Andrada, DMSc16, Morgan Celistan, MMSc23, Ozge Erdogan, DMSc22, and Yu-Chiao Wu, DMSc23, whose research was supported by the Krakow fund, presented topics including the neurotoxicity of endodontic sealers, biomarkers in endodontics, and the influence of race in treatment planning.

## Oral Medicine, Infection, and Immunity

**Professor of Oral Medicine, Infection and Immunity Dr. Roland Baron recently spoke at a number of conferences and universities across Spain and Japan.** At the International Bone Academy meeting in Barcelona, Baron spoke on "New pathways and targets for osteoanabolism." He gave two lectures at the Japan Osteoporosis Society meeting: "Mechanisms of action of bone anabolics: Similarities and differences" and "Anabolic osteoporosis treatments: How do their effects differ?" Additionally, he gave a speech titled "Novel signaling events downstream of the PTH/PTHrP receptor in bone cells" at the Ehime Graduate School of Medicine in Matsuyama, Japan and at the Tokyo University Graduate School of Medicine. Members of the Baron-Gori Lab presented on eight research projects at this year's American Society for Bone and Mineral Research (ASBMR) Annual Meeting in Vancouver, CA.

**HSDM Assistant Professor Dr. Ang Cui was published in *Nature* this December for her paper titled "Dictionary of immune responses to cytokines at single-cell resolution."** The researchers found how 86 major cytokines affect 17 immune cell types in mice and then created software that helps scientists identify the most active cytokines involved in a disease or drug response, and how different immune cells carry out different functions depending on which cytokine signal they receive. Cui says their findings could further what's currently known about natural immune responses and human immune-related diseases.

# GET TO KNOW A RESEARCHER

## ***Q: When did you come to HSDM and what brought you here?***

A: I joined HSDM and Dr. Elani's EQUAL lab in August 2022. It started through a longtime collaboration between Hawazin and Dr. Alexandre Chiavegatto Filho, from the Lab for Big Data and Predictive Analysis in Health (LABDAPS) from the University of Sao Paulo, Brazil, who is also a collaborator of mine.

## ***Q: Can you share a summary of your current research focus?***

A: In my work, I investigate oral health inequities through different perspectives and analytic techniques, such as causal inference and machine learning approaches. My experience comprises studies on health inequities related to socioeconomic position, race and ethnicity, sex, and age, as well as the intersections between some of these factors. As a Postdoctoral Research Fellow at HSDM, one of the areas I have been researching is the application of machine learning to population oral health. Consistent with my interest in health equity, I am exploring algorithmic fairness, investigating the performance of machine learning models among marginalized subgroups, and techniques for monitoring and mitigating algorithmic biases.

## ***Q: How did you first get interested in your area of research?***

A: Social justice has been a matter close to my heart since early on, probably inspired by my mother, who is a social worker and lawyer. It was then natural for me to steer my professional life towards social equity. My passion is to mitigate social oral health inequities through science, and I have been involved in research activities since the start of my undergraduate degree. During the last 10 years, I have been developing research focused on health equity, studying the social determinants of health and how social identities and critical adversities impact health and well-being over the life course. I feel fortunate to have the opportunity to collaborate with and learn from Dr. Hawazin Elani, who shares my passion for oral health equity and has been doing some groundbreaking work in this area.

## ***Q: What is your favorite part of the work you do?***

A: The potential of the work to benefit those who need it the most, and the fact that this passion is shared by everyone in our team. We are a multidisciplinary team working truly collaboratively. The vibrant environment is inspiring and drives us to excel in our work.

## ***Q: What impact do you hope your research will have?***

A: It is well known that healthcare access and outcomes are socially-patterned, in the U.S. and worldwide. In the epigraph of my PhD thesis, I quoted Professor Sir Michael Marmot: "At the end of every scientific paper there is a familiar coda: more research is needed, more research is needed. What, I wondered, if we added a new coda: more action is needed. It need not be discordant with the first." Research gives us understanding but it is ineffectual unless action is taken. I hope to bridge the gap between theory and practice, working with communities, rather than for them. With the work I am collaborating on in the EQUAL lab, we work toward reducing the burden of oral problems on the population, but especially to lessen the disproportionate and unfair share of problems that affect those in marginalized communities. We aspire to engage with researchers, communities, and stakeholders, to propose evidence-based interventions and to motivate the responsible integration of technologies to reduce disparities in oral health.

## ***Q: What are your hobbies/interests outside of work?***

A: I've always enjoyed reading, and one of my favorite activities on weekends is to find little cafes around Boston for a good cup of coffee and a book. I am also keen on learning new languages and am currently studying French.

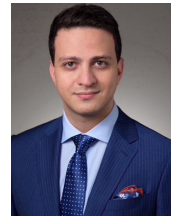


Dr. Helena Schuch is a research fellow in the Department of Oral Health Policy and Epidemiology. She completed her studies and training in Australia and Brazil before coming to HSDM in 2022.



# NEW RESEARCH STAFF AND PROMOTIONS

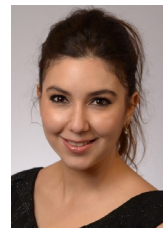
**Dr. Shayan Barootchi joined the Department of Oral Medicine, Infection, and Immunity in September as a part-time faculty member.** Barootchi completed his postdoctoral training, residency, and Master of Science at the University of Michigan. He most recently served as an adjunct clinical assistant professor working in the Department of Periodontics and Oral Medicine at UM. His research focuses on periodontal and peri-implant plastic surgery, immediate implant therapy, and implant disease management. At HSDM, Barootchi will support the School's mission through mentoring postgraduate students, teaching, and conducting clinical research.



**Dr. Fernando Guastaldi was promoted to assistant professor of Oral and Maxillofacial Surgery in September.** Previously an instructor in the OMFS department, Guastaldi's research focuses on bone tissue engineering for the repair/regeneration of the jaws and on tissue engineering of the temporomandibular joint.

## GRANTS AND AWARDS

**Dr. Steffany Chamut, an instructor in Oral Health Policy and Epidemiology, received an NIH/NIDCR R21 grant for her project “Oral diseases and quality of life in older adults on anti-retroviral therapy in Uganda.”** Together with co-PI Samuel Maling, an associate professor at Mbarara University of Science and Technology, the project aims to determine the impacts of the geriatric syndromes (frailty, depression, and cognitive decline) on oral health and quality of life in people with HIV, and to explore the mechanisms of integration of oral health services into routine HIV care in the context of rural Sub-Saharan Africa. The hope is to design an intervention in southwestern Uganda to assess the inclusion of an oral and dental health preventive and promotion program to routine HIV care.



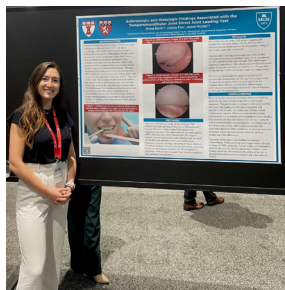
**A joint research group between Massachusetts General Hospital, Harvard School of Dental Medicine and Tufts University School of Dental Medicine recently received NIH R34 funding from the NIDCR's research initiative "TMD Collaborative for IMproving PATient-Centered Translational Research (TMD IMPACT)."** The funding

supports the creation of the Boston Collaborative for Temporomandibular Disorders (BCTMD), which seeks to train the next generation of clinicians and scientists that can recognize the unmet clinical needs in the field of TMD and develop bench-to-bedside solutions to improve patient outcomes. Dr. Fernando Guastaldi (HSDM) and Dr. Shruti Handa (MGH) are the Principal Investigators for the grant, and HSDM faculty members Dr. Roxanne Bavarian and Dr. Briana Burris are involved in the collaborative.

**Dr. Daniel Choi, an instructor in Oral and Maxillofacial Surgery at HSDM and the Assistant Director of the Temporomandibular Joint and Minimally Invasive Endoscopic Fellowship at MGH, was awarded the Slavin Teaching Scholars Grant from the Mass General Slavin Academy.** The grant program supports the career development of outstanding MGH educators who wish to improve patient care through transformative educational practice. With the funding, Choi will further develop his simulation program to improve interprofessional collaboration and effective crisis management in office-based anesthesia.



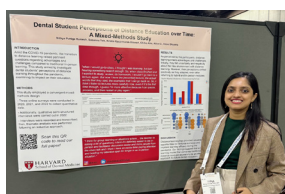
**Dr. Yizhong (Jenny) Hu, a research fellow in Developmental Biology, was selected as recipient of the ASBMR 2023 Annual Meeting Young Investigator Travel Grant.** The grant recognizes the top young researcher members presenting at the meeting and supports their travel to the conference. Hu presented on research titled "Piezo1 Regulates cGMP/PKG Signaling in Osteocyte Mechanotransduction." Fellow HSDM researchers Dr. Xinchun Wu, Fuhua Wang and Dr. Yingzi Yang also contributed to the project.



**Several members of the Department of Oral and Maxillofacial Surgery (OMFS) were recognized for their presentations at this year's American Association of Oral and Maxillofacial Surgeons (AAOMS) Annual Meeting.** Lindsay Pius, DMD24, won a poster award for her poster "Is the Temporomandibular Joint Direct Joint Loading Test Associated with Arthroscopic and Histologic Findings." Oral and Maxillofacial Surgery Research Fellow Dr. Jason Chen was presented the Oral Abstract Presentation Award from the AAOMS and the Committee on Continuing Education and Professional Development. Chen was recognized

at the AAOMS Annual Meeting for his paper "Connector-Assisted Repair of Transected Inferior Alveolar and Lingual Nerves using Photochemical Tissue Bonding: An Ex Vivo Pilot Study." Dr. Briana Burris, an instructor at HSDM and surgeon at Massachusetts General Hospital, also received an oral abstract award for her presentation on "Utilization of Endoscopic and Exoscopic Assistance During Excision of Temporomandibular Joint Pathologies with Skull Base Extension: Review of Seven Cases from Massachusetts General Hospital."

**Second year prosthodontics resident Dr. Kyle Radomski presented a poster at the 2023 American College of Prosthodontics meeting in San Diego and received third place in the Resident Poster Presentation Competition.** His poster was titled "Effect of Exposure Energy on Lateral Resolution and Flexural Strength of 3D Printed Dental Zirconia," and the project sought to find the optimal energy dosage required to reliably produce 3D-printed dental zirconia in reference to the most dimensionally accurate print as well as providing a high flexural strength product. The corresponding study, led by PI's Dr. Sang Lee from HSDM and Dr. Hyung-In Yoon from Seoul National University School of Dentistry, has since been accepted by the *Journal of Advanced Prosthodontics* for publication.



**Nithya Ramesh, DMSc25, a candidate in the dental public health program, received the Caswell A. Evans Post Professional Student Award at the American Public Health Association annual meeting.** The award recognized Ramesh's outstanding population oral health research project titled "Dental Students' Perception of Distance Education over Time: A Mixed-Methods Study," which she presented at the conference. Under the guidance of Dr. Hiroe Ohyama, an associate professor of Restorative Dentistry and Biomaterials Sciences, the research team surveyed dental students' perceptions of remote learning during the pandemic and found that a mix of traditional and distance education is the preferred approach.

**Lama Alabdulaaly, DMSc21, a current student in the Oral Medicine Residency program, was selected by the Australian and New Zealand Bone and Mineral Society (ANZBMS) Early Career Investigator Committee to receive the 2023 Bridging Overseas Networking and Exchange (B.O.N.E) program award.** The award was established in 2018 to provide funds for early career investigators in order to increase their exposure, provide travel support, and facilitate international networking and collaboration. As this year's award recipient, Alabdulaaly presented her work "*Pth1r* Signaling in Adipoq+ Bone Marrow Cells (MALPs) Decreases Bone Mass and Restricts the Anabolic Response to PTH" at the ANZBMS Annual Scientific Meeting in Newcastle, Australia.





# UPCOMING EVENTS

## Office of Research Seminar Series

In-person at 190 Longwood Ave, REB Auditorium, 12:00-1:00pm (with HUID) or via livestream  
(registration required)



**February 21, 2024**

**Kimon Divaris, DDS, PhD**

*James D. Bawden Distinguished Professor of Pediatric Dentistry  
Division of Pediatric & Public Health Adams School of Dentistry  
University of North Carolina at Chapel Hill*

*“The Interface Between Population Oral Health Research and Molecular  
Investigations: Progress and Novel Insights”*



**April 10, 2024**

**Sylvia Frazier-Bowers, DDS, PhD**

*Professor, Orthodontics and Oral Facial Genetics  
Associate Dean, Student Affairs and Admissions  
Chief Diversity Officer*

*Indiana University School of Dentistry*

*“Truth or Consequence: The Science Behind Dental Eruption Disorders”*



**May 1, 2024**

**Jeffrey Bush, PhD**

*Barber Distinguished Professor and Chair  
Department of Cell and Tissue Biology, Program in Craniofacial Biology, Institute for  
Human Genetics*

*School of Dentistry, University of California San Francisco*

*“Modeling Craniofacial Morphogenesis and Disease Through Live Imaging and Gene  
Editing”*



**May 8, 2024**

**Laura Calvi, MD**

*SKAWA Foundation Professor in Endocrinology and Metabolism, Department of  
Medicine*

*University of Rochester School of Medicine and Dentistry, University of Rochester*



**June 6, 2024**

**Regis O'Keefe, MD, PhD**

*Chair, Department of Orthopaedic Surgery  
Fred C. Reynolds Professor of Orthopaedic Surgery  
Interim Chief, Division of Musculoskeletal Oncology  
Washington University School of Medicine*

# Prevention and Management of Treatment Complications in Dentistry

Saturday, March 2, 2024, 9:00am – 12:00pm  
HSDM Campus

This course intends to address complications that come up in various dental specialties by inviting experienced faculty members to share their insights into resolving these issues. They will provide valuable clinical knowledge and enhance participants' clinical decisions and skills. Visit the HSDM calendar website to register for the course.



## HSDM Diversity Week

Monday, March 4 – Friday, March 8, 2024  
HSDM Campus

A week-long series of events featuring speakers from across the country who will highlight diverse perspectives in dentistry and how they influence oral health, medicine, and academia. Participants will leave with a better understanding of how to learn from one another with humility and respect for cultural differences and similarities. This year's theme and event schedule has yet to be announced. Check the HSDM calendar for more information.



## Student Research Day & Donald B. Giddon Lecture

Tuesday, April 9, 2024  
REB Lobby/Auditorium

Every year, Student Research Day allows graduating DMD, MMSc, and DMSc students to showcase their research to their peers and teachers. Also apart of the day is the Professor Donald B. Giddon Annual Lecture in Behavioral Medicine and Dentistry, which includes a keynote presentation from an esteemed researcher in the field. Topics for this endowed lecture have addressed a range of issues intersecting behavioral health and oral health related to the focus and function of the orofacial area, including the effects of pain on growth in children, socio-dental sciences, leadership, and global oral health.



# PUBLICATIONS

## DEVELOPMENTAL BIOLOGY

Abuhashish H, Shahin S, Alamri A, Salloom Z, Alhawaj H, Omar O. Angiotensin(1-7) attenuates tooth movement and regulates alveolar bone response during orthodontic force application in experimental animal model. *Progress in Orthodontics*. 2023 Oct 16.

Bai Y, Wang Y, Kang M, Gabe CM, Srirangapattanam S, Edwards A, Stoller M, Green SJ, Aloni S, Tamura N, Beniash E, Hardt M, Ho SP. Organic Matrix Derived from Host-Microbe Interplay Contributes to Pathological Renal Biomineralization. *ACS Nanoscience Au*. 2023 Jul 7.

Chen R, Dong H, Raval D, Maridas D, Baroi S, Chen K, Hu D, Berry SR, Baron R, Greenblatt MB, Gori F. Sfrp4 is required to maintain Ctsk-lineage periosteal stem cell niche function. *Proceedings of the National Academy of Sciences of the United States of America*. 2023 Nov 14.

Gil-Bona A, Karaaslan H, Depalle B, Sulyanto R, Bidlack FB. Proteomic Analyses Discern the Developmental Inclusion of Albumin in Pig Enamel: A New Model for Human Enamel Hypomineralization. *International Journal of Molecular Sciences*. 2023 Oct 25.

Kapila S, Vora SR, Rengasamy Venugopalan S, Elnagar MH, Akyalcin S. Connecting the dots towards precision orthodontics. *Orthodontics & Craniofacial Research*. 2023 Nov 15.

Kumar H, McCafferty K, Neboda C, Chase I. Investigation on the effects of long-term antibiotic therapy in sickle cell disease associated with molar-incisor hypomineralisation-a pilot study. *Journal of Clinical Pediatric Dentistry*. 2023 Sep.

Lyons KM, Rosen V. Strengthening the case for BMP inhibition as a point of intervention for osteoarthritis. *Osteoarthritis and Cartilage*. 2023 Aug 23.

Manchanda S, Sardana D, Peng S, Lo ECM, Chandwani N, K Y Yiu C. Is Mutans Streptococci count a risk predictor of Early Childhood Caries? A systematic review and meta-analysis. *BMC Oral Health*. 2023 Sep 7.

Moore ER, Maridas DE, Gamer L, Chen G, Burton K, Rosen V. A periosteum-derived cell line to study the role of BMP/TGF $\beta$  signaling in periosteal cell behavior and function. *Frontiers in Physiology*. 2023 Sep 20.

Steinbaum S, Jagannath J, Seymour L, Corby P, Kulkarni R, France K. Oral healthcare providers play a vital role in vaccination efforts: Patient perspectives. *Clinical and Experimental Dental Research*. 2023 Oct 6.

Wejaphikul K, Dejkhamron P, Khorana J, Watcharachan K, Intachai W, Olsen B, Tongsimma S, Ketudat Cairns JR, Ngamphiw C, Kantaputra P. Subtotal Parathyroidectomy Successfully Controls Calcium Levels of Patients with Neonatal Severe Hyperparathyroidism Carrying a Novel CASR Mutation. *Hormone Research in Paediatrics*. 2023.

## ORAL MEDICINE, INFECTION AND IMMUNITY

AlHezaimi K, Rotstein I, Katz J, Nevins M, Nevins M. Effect of selective serotonin reuptake inhibitor (paroxetine) on newly formed bone volume: Real time in vivo micro computed tomographic analysis. *Journal of Endodontics*. 2023 Aug 16.

Baker JL, Mark Welch JL, Kauffman KM, McLean JS, He X. The oral microbiome: diversity, biogeography and human health. *Nature Reviews Microbiology*. 2023 Sep 12.



Carbone AC, Joly JC, Botelho J, Machado V, Avila-Ortiz G, Cairo F, Chambrone L. Long-term stability of gingival margin and periodontal soft-tissue phenotype achieved after mucogingival therapy: A systematic review. *Journal of Clinical Periodontology*. 2023 Nov 14.

Chen R, Dong H, Raval D, Maridas D, Baroi S, Chen K, Hu D, Berry SR, Baron R, Greenblatt MB, Gori F. Sfrp4 is required to maintain Ctsk-lineage periosteal stem cell niche function. *Proceedings of the National Academy of Sciences*. 2023 Nov 14.

Couso-Queiruga E, Raabe C, Belser UC, Buser D, Avila-Ortiz G, Rodrigues DM, Chappuis V. Non-invasive assessment of peri-implant mucosal thickness: A cross-sectional study. *Journal of Periodontology*. 2023 Nov.

Dini C, Costa RC, Bertolini M, Shibli JA, Feres M, Inêz Klein M, de Avila ED, Souza JGS, Barão VAR. In vitro polymicrobial oral biofilm model represents clinical microbial profile and disease progression during implant-related infections. *Journal of Applied Microbiology*. 2023 Nov 10.

Erdogan O, Michot B, Xia J, Alabdulaaly L, Yesares Rubi P, Ha V, Chiu IM, Gibbs JL. Neuronal-immune axis alters pain and sensory afferent damage during dental pulp injury. *Pain*. 2023 Oct 30.

Feher B, Kampleitner C, Heimel P, Tangl S, Helms JA, Kuchler U, Gruber R. The effect of osteocyte-derived RANKL on bone graft remodeling: An in vivo experimental study. *Clinical Oral Implants Research*. 2023 Oct 4.

Galarraga-Vinueza ME, Barootchi S, Nevins ML, Nevins M, Miron RJ, Tavelli L. Twenty-five years of recombinant human growth factors rhPDGF-BB and rhBMP-2 in oral hard and soft tissue regeneration. *Periodontology 2000*. 2023 Sep 8.

Gargallo-Albiol J, Dastouri E, Sabri H, Steigmann L, Pérez-García S, Wang HL. Evaluation of hemodynamic changes and patient-reported outcome measures in surgical therapy with or without intravenous sedation: a prospective controlled clinical study. *Clinical Oral Investigations*. 2023 Nov 1.

Hung CCU, Costa RC, Pereira G, Abdo VL, Noronha MDS, Retamal-Valdes B, Bertolini M, Feres M, Shibli JA, Barão VAR, Souza JGS. Oral microbial colonization on titanium and polyetheretherketone dental implant healing abutments: An in vitro and in vivo study. *Journal of Prosthetic Dentistry*. 2023 Sep 14.

Jensen SS, Aghaloo T, Jung RE, Bertl K, Buser D, Chappuis V, de Stavola L, Monje A, Pispero A, Rocuzzo A, Shahdad S, Stefanini M, Tavelli L, Wang HL, Zucchelli G. Group 1 ITI Consensus Report: The role of bone dimensions and soft tissue augmentation procedures on the stability of clinical, radiographic, and patient-reported outcomes of implant treatment. *Clinical Oral Implants Research*. 2023 Sep.

Jusuf S, Dong PT. Chromophore-Targeting Precision Antimicrobial Phototherapy. *Cells*. 2023 Nov 20.

Lv Z, Zhang J, Liang S, Zhou C, Hu D, Brooks DJ, Bouxsein ML, Lanske B, Kostenuik P, Gori F, Baron R. Comparative study in estrogen-depleted mice identifies skeletal and osteocyte transcriptomic responses to abaloparatide and teriparatide. *JCI Insight*. 2023 Oct 23.

Nevins M, Chen CY, Parma-Benfenati S, Kim DM. Gas Plasma Treatment Improves Titanium Dental Implant Osseointegration-A Preclinical In Vivo Experimental Study. *Bioengineering*. 2023 Oct 11.

Shaikh S, Li A, Dragan I. Mixing Allograft and Xenograft for a Predictable Alveolar Ridge Preservation Procedure: A Case Series. *Compendium of Continuing Education in Dentistry*. 2023 Oct.

Stefanini M, Barootchi S, Sangiorgi M, Pispero A, Grusovin MG, Mancini L, Zucchelli G, Tavelli L. Do soft tissue augmentation techniques provide stable and favorable peri-implant conditions in the medium and long term? A systematic review. *Clinical Oral Implants Research*. 2023 Sep.

Sun M, Clayton N, Alam S, Asmussen N, Wong A, Kim JH, Luong G, Mokhtari S, Pellei D, Carrico CK, Schwartz Z, Boyan BD, Giannobile WV, Sahingur SE, Lin Z. Selective BET inhibitor RVX-208 ameliorates periodontal inflammation and bone loss. *Journal of Clinical Periodontology*. 2023 Oct 19.

Tavelli L, Barootchi S, Rodriguez MV, Travan S, Oh TJ, Neiva R, Giannobile WV. Living cellular constructs for keratinized tissue augmentation: A 13-year follow-up from a split-mouth randomized, controlled, clinical trial. *Journal of Periodontology*. 2023 Nov.

Tavelli L, Kripfgans OD, Chan HL, Vera Rodriguez M, Sabri H, Mancini L, Wang HL, Giannobile WV, Barootchi S. Doppler ultrasonographic evaluation of tissue revascularization following connective tissue graft at implant sites. *Journal of Clinical Periodontology*. 2023 Oct 20.

Toyoshima K, Ohsugi Y, Lin P, Komatsu K, Shiba T, Takeuchi Y, Hirota T, Shimohira T, Tsuchiya Y, Katagiri S, Iwata T, Aoki A. Blue Light-Emitting Diode Irradiation Without a Photosensitizer Alters Oral Microbiome Composition of Ligature-Induced Periodontitis in Mice. *Photobiomodulation, Photomedicine, and Laser Surgery*. 2023 Oct.

Wu YC, Yu N, Rivas CA, Mehrnia N, Kantarci A, Van Dyke TE. RvE1 Promotes Axin2+ Cell Regeneration and Reduces Bacterial Invasion. *Journal of Dental Research*. 2023 Oct 13.

Xu T, Chen N, He X, Chen F. Editorial: The relationship of oral and other body sites microbiome in human diseases. *Frontiers in Cellular and Infection Microbiology*. 2023 Aug 23.

Yaroslavsky AN, Iorizzo TW, Juliano AF, Adnan A, Carroll JD, Sonis ST, Duncan CN, London WB, Treister NS. Monte Carlo based dosimetry of extraoral photobiomodulation for prevention of oral mucositis. *Science Reports*. 2023 Nov 22.

Zhu ZX, Liu Y, Wang J, Xie Y, Li RY, Ma Q, Tu Q, Melhem NA, Couldwell S, El-Araby RE, Tai A, Van Dyke TE, Karimbux N, Jeong YN, Chen JJ. A novel lncRNA-mediated epigenetic regulatory mechanism in periodontitis. *International Journal of Biological Sciences*. 2023 Oct 9.

## ORAL AND MAXILLOFACIAL SURGERY

Abd El-Salam MA, Troulis MJ, Pan CX, Rao RA. Unlocking the potential of organoids in cancer treatment and translational research: An application of cytologic techniques. *Cancer Cytopathology*. 2023 Oct 16.

Aiyar A, Pedersen TK, Resnick CM, Nørholt SE, Verna C, Stoustrup PB. Management of unilateral craniofacial microsomia with orthopaedic functional appliances: A systematic literature review. *Orthodontics & Craniofacial Research*. 2023 Nov 21.

Bavarian R, Sandhu S, Handa S, Shaefer J, Kulich RA, Keith DA. Centers for Disease Control and Prevention Clinical Practice Guideline for Prescribing Opioids: United States, 2022: What dentists need to know. *The Journal of the American Dental Association*. 2023 Sep.

Bavia PF, Khawaja S, Hernández-Nuño de la Rosa MF, Tseng LA, Keith DA. Association Between Pharmacotherapy and Sleep Quality in Patients with Chronic Orofacial and Chronic Body Pain: A Cross-Sectional Study. *Journal of Pain Research*. 2023 Oct 10.

Golden E, van der Heijden H, Ren B, Randall ET, Drubach LA, Shah N, Cay M, Ebb D, Kaban LB, Peacock ZS, Boyce AM, Mannstadt M, Upadhyay J. Phenotyping Pain in Patients with Fibrous Dysplasia/McCune-Albright Syndrome. *The Journal of Clinical Endocrinology & Metabolism*. 2023 Oct 6.

Harris JA, Beck NA, Niedziela CJ, Alvarez GA, Danquah SA, Afshar S. The global reach of social media in oral and maxillofacial surgery. *Oral and Maxillofacial Surgery*. 2023 Sep.

Ji YD, Harris JA, Peacock ZS, Liang L, Dodson TB, Cillo JE Jr. Research Literacy for Oral and Maxillofacial Surgeons: Why Is It Important and How Can We Do Better? *Journal of Oral and Maxillofacial Surgery*. 2023 Oct.

Kashtwari D, Isufi A, Friedland B. A Multilocular Radiolucency Presenting at the Apex of a Tooth: Lessons to Learned. *Journal of Oral and Maxillofacial Radiology*. (accepted)

Keith DA, Handa S, Mercuri LG. Peri-articular bone formation involving the temporomandibular joint: a narrative summary and Delphi consensus of a new classification system. *International Journal of Oral and Maxillofacial Surgery*. 2023 Sep 28.

Khawaja S, Bavarian R, Abdul Rehman S, Hafeez H. Head and Neck Cancer-Related Pain: A Descriptive Analysis of the Pain Phenotypes. *Journal of Pain Research*. 2023 Aug 25.

Liang L, Chuang SK. Trends in Soccer-Related Craniomaxillofacial Injuries, United States 2003-2022. *Journal of Oral and Maxillofacial Surgery*. 2023 Sep 9.

Ma CY, Beck NA, Hockaday MZ, Niedziela CJ, Ritchie CA, Harris JA, Roudnitsky E, Guntaka PKR, Yeh SY, Middleton J, Norrlinger JY, Alvarez GA, Danquah SA, Yang S, Deoglas DK, Afshar S. The global distribution of oral and maxillofacial surgeons: a mixed-methods study. *International Journal of Oral and Maxillofacial Surgery*. 2023 Oct 13.

Ma KS, Peacock ZS, Tsao CH, Wei JC, Wang LT. Inflammatory pathogenesis linking juvenile idiopathic arthritis and obstructive sleep apnea. *International Journal of Rheumatic Diseases*. 2023 Sep.

Ritto FG, Mealy T, Canellas JV, Padwa BL, Smith KS. Piriform Rim Asymmetry in Unilateral Cleft Lip and Palate Patients Before Orthognathic Surgery. *Journal of Oral Maxillofacial Surgery*. 2023 Aug 9.

Testori T, Khijmatgar H, Saibene AM, Felisati G, Zuffetti F, Clauser T, Wang H, Del Fabbro M, Friedland B. Post-maxillary sinus surgery opacification in asymptomatic patients: Transient swelling of the sinus mucosa or graft dispersed into the maxillary sinus. A radiographic report of 3 cases after at least 5-year follow-up. *International Journal of Oral Implantology*. (accepted)

## ORAL HEALTH POLICY AND EPIDEMIOLOGY

Alhazmi H, AlDukhail S. Disparities in HPV and the HPV Vaccine Knowledge Among Non-Hispanic Black Adults in the US - HINTS 2017-2020. *Journal of Immigrant and Minority Health*. 2023 Aug 17.

Chamut S, Shoff C, Yao K, Fleisher LA, Chalmers NI. Oral Health Among Medicare Beneficiaries in Nursing Homes. *JAMA Network Open*. 2023 Sep 5.



Cothron AE, Clermont D, Shaver A, Alpert E, Ogwo C. Improving knowledge, comfort, and attitudes for LGBTQIA+ clinical care and dental education. *The American Institute of Dental Public Health*. San Antonio, Texas: July 2023.

Nath S, Jiang T, Barrow J, Simon L. Treatment deferral for elevated blood pressure at a dental school clinic. *Journal of Dental Education*. 2023 Sep 19.

Schuch HS, Furtado M, Silva GFDS, Kawachi I, Chiavegatto Filho ADP, Elani HW. Fairness of Machine Learning Algorithms for Predicting Foregone Preventive Dental Care for Adults. *JAMA Network Open*. 2023 Nov 1.

Simon L, Alpert E. Medical-Dental Integration in Medicare: Where are We Now? *Journal of the California Dental Association*. 2023 Sep 6.

Tokede B, Yansane A, Ibarra-Noriega A, Mullins J, Simmons K, Skourtes N, Mehta U, Tungare S, Holmes D, White J, Walji M, Kalendarian E. Evaluating the Impact of an mHealth Platform for Managing Acute Postoperative Dental Pain: Randomized Controlled Trial. *JMIR Mhealth and Uhealth*. 2023 Oct 20.

Vardavas C, Zisis K, Nikitara K, Lagou I, Marou V, Aslanoglou K, Athanasakis K, Phalkey R, Leonardi-Bee J, Fernandez E, Condell O, Lamb F, Sandmann F, Pharris A, Deogan C, Suk JE. Cost of the COVID-19 pandemic versus the cost-effectiveness of mitigation strategies in EU/UK/OECD: a systematic review. *BMJ Open*. 2023 Oct 31.

Yeh SY, Puttige Ramesh N, Kaczmarek-Stewart K, Ahn C, Li AZ, Ohyama H. Dental Student Perceptions of Distance Education over Time: A Mixed-Methods Study. *Dentistry Journal*. 2023 Oct 2.

## **RESTORATIVE DENTISTRY AND BIOMATERIALS SCIENCES**

Aram A, Hong H, Song C, Bass M, Platt JA, Chutinan S. Physical Properties and Clinical Performance of Short Fiber Reinforced Resin-based Composite in Posterior Dentition: Systematic Review and Meta-analysis. *Operative Dentistry*. 2023 Sep 1.

Derksen W, Joda T, Chantler J, Fehmer V, Gallucci GO, Gierthmuehlen PC, Ioannidis A, Karasan D, Lanis A, Pala K, Pjetursson BE, Roccuzzo M, Sailer I, Strauss FJ, Sun TC, Wolfart S, Zitzmann NU. Group 2 ITI Consensus Report: Technological developments in implant prosthetics. *Clinical Oral Implants Research*. 2023 Sep.

Erdogan O, Michot B, Xia J, Alabdulaaly L, Yesares Rubi P, Ha V, Chiu IM, Gibbs JL. Neuronal-immune axis alters pain and sensory afferent damage during dental pulp injury. *Pain*. 2023 Oct 30.

Erdogan O, Xia J, Chiu IM, Gibbs JL. Dynamics of Innate Immune Response in Bacteria-Induced Mouse Model of Pulpitis. *Journal of Endodontics*. 2023 Sep 9.

Hamilton A, Gonzaga L, Amorim K, Wittneben JG, Martig L, Morton D, Martin W, Gallucci GO, Wismeijer D. Selection criteria for immediate implant placement and immediate loading for single tooth replacement in the maxillary esthetic zone: A systematic review and meta-analysis. *Clinical Oral Implants Research*. 2023 Sep.

Hilton E 4th, Song C, Park SE. Perspectives on virtual interviews for dental school admissions. *European Journal of Dental Education*. 2023 Nov 5.

Kim A, Karra N, Song C, Linder PJ, Bonino F, Doig P, Zandona A. Gender trends in dentistry: Dental faculty and academic leadership. *Journal of Dental Education*. 2023 Oct 8.

Lanis A, Luz D, Pedrinaci I, Almutairi M, Gallucci GO. AI Based Advanced Segmentation for Static – Computer Assisted implant Surgery. Global Symposium on Artificial Intelligence in Dentistry. 2023 Nov 3-4; Boston, MA.

Lin AJ, Lin Z, Ha V, Zhang L, Kim S, Ohyama H. Dental students' behaviors and attitudes on virtual learning in the US and China: A pilot study. *Journal of Dental Education*. 2023 Nov 22.

Martakoush-Saleh S, Salgado-Peralvo AO, Peña-Cardelles JF, Kewalramani N, Gallucci GO. Evaluating the clinical behavior of veneered zirconia in comparison with monolithic zirconia complete arch implant-supported prostheses: A systematic review and meta-analysis. *Journal of Prosthetic Dentistry*. 2023 Aug 9.

Michot B, Casey SM, Lee CS, Erdogan O, Basu H, Chiu I, Gibbs JL. Lipopolysaccharide-induced TRPA1 upregulation in trigeminal neurons is dependent on TLR4 and vesicular exocytosis. *Journal of Neuroscience*. 2023 Aug 25.

Nasseri A, Pius L, Pedrinaci I, Rousson D, Lopez L, Lanis A, Giannobile W, Gallucci GO. Artificial Intelligence Applications for Digital Tooth Autotransplantation: A Case Report. Global Symposium on Artificial Intelligence in Dentistry. 2023 Nov 3-4; Boston, MA.

Nguyen O, Lee SJ, Lee JD. Influence of varying titanium base abutment heights on retention of zirconia restorations: An in vitro study. *Journal of Prosthetic Dentistry*. 2023 Aug 24.

Pedrinaci I, Calatrava J, Flores J, Hamilton A, Gallucci GO, Sanz M. Multifunctional anatomical prototypes (MAPs): Treatment of excessive gingival display due to altered passive eruption. *Journal of Esthetic Restorative Dentistry*. 2023 Oct.

Pelekanos S, Ntovas P, Rizou V, Pozzi A. Translucent monolithic zirconia titanium-supported FP1 full-arch prosthesis: A novel proof of concept to address esthetic, functional, and biologic challenges. *Journal of Esthetic Restorative Dentistry*. 2023 Nov 17.

Radomski K, Lee YH, Lee SJ, Yoon HI. Effect of exposure energy dose on lateral resolution and flexural strength of three-dimensionally printed dental zirconia. *Journal of Advanced Prosthodontics*. 2023 Oct.

Revilla-León M, Lanis A, Yilmaz B, Kois JC, Gallucci GO. Intraoral digital implant scans: Parameters to improve accuracy. *Journal of Prosthodontics*. 2023 Aug 16.

Sharma S, Birnie KA, Wang S, Fernandes Gomes FI, Gibbs JL, Mittinty MM. The value of the International Association for the Study of Pain to career development: perspectives of trainee and early career members. *Pain*. 2023 Nov 1.

Wittneben JG, Molinero-Mourelle P, Hamilton A, Alnasser M, Obermaier B, Morton D, Gallucci GO, Wismeijer D. Clinical performance of immediately placed and immediately loaded single implants in the esthetic zone: A systematic review and meta-analysis. *Clinical Oral Implants Research*. 2023 Sep.

Yeh SY, Puttige Ramesh N, Kaczmarek-Stewart K, Ahn C, Li AZ, Ohyama H. Dental Student Perceptions of Distance Education over Time: A Mixed-Methods Study. *Dentistry Journal*. 2023 Oct 2.