DR. ZACHARY PEACOCK APPOINTED AS CHAIR OF ORAL AND MAXILLOFACIAL SURGERY

After a nationwide search, Zachary Peacock, DMD04, has been named Chair of Oral and Maxillofacial Surgery (OMFS) at Harvard School of Dental Medicine (HSDM) and Chief of Oral and Maxillofacial Surgery at Massachusetts General Hospital (MGH). In his new role, Dr. Peacock will lead all aspects of the clinical practice and OMFS advanced graduate educational programs at MGH and HSDM. His appointment is effective immediately.

“I am thrilled that Dr. Peacock will be leading OMFS and working across MGH and HSDM to elevate our shared interests and successes. I know he will be an exemplary role model for our DMD students, residents, and fellows in OMFS at MGH and HSDM,” said Dean William Giannobile in an announcement to the community.

Dr. Peacock is an alumnus of HSDM and a recognized leader and mentor in the field of OMFS. A native of Michigan, he completed his undergraduate work at Michigan State University before receiving his DMD from HSDM in 2004. He went on to complete his MD and residency training in oral and maxillofacial surgery at the University of California, San Francisco. He then completed the MGH Pediatric Oral and Maxillofacial Surgery Fellowship and has held a faculty appointment with HSDM since 2010.

“I am delighted and honored for the opportunity to carry on the outstanding legacy of MGH/HSDM Oral and Maxillofacial Surgery. HSDM has had such a profound impact on my life and career. I am incredibly grateful to serve HSDM in this capacity,” Peacock said.

Dr. Peacock has served as Chief of Pediatric Oral and Maxillofacial Surgery and co-director of the Cleft and Craniofacial Center at MGH for Children and Shriner’s Hospital for Children–Boston. He has held national roles as Chair of the Research Committee for American Association of Oral and Maxillofacial Surgeons and is a Trustee of the American Academy of Craniomaxillofacial Surgeons. He is the recipient of numerous awards, including the Excellence in Mentoring Young Mentor Award from Harvard Medical School in 2020, and the William J. Gies Award for Oral and Maxillofacial Surgery from the American Dental Education Association Gies Foundation and American Association of Oral and Maxillofacial Surgeons.
RESEARCH SPOTLIGHT

New Research Links Periodontitis Treatment with Improved Cancer Outcomes

A multidisciplinary team of researchers from Harvard School of Dental Medicine (HSDM), Massachusetts General Hospital and São Paulo State University School of Dentistry of Araçatuba (UNESP) recently published a review in *The Lancet Healthy Longevity* highlighting the potential to improve cancer treatment outcomes and decrease treatment-related adverse events by addressing periodontitis.

Their work breaks down the pathophysiology of periodontitis and its comorbidities to showcase how the oral microbiome can affect host immune responses that overlap with immune-related adverse events associated with immunotherapy.

“Periodontitis is associated with various systemic inflammatory disorders, and given the increasing use of immunotherapy in cancer treatment, there seemed to be a potential link between immunotherapy outcomes and oral health,” said Sara Pai, MD, PhD, a surgeon-scientist in the Division of Surgical Oncology at MGH studying cancer immunotherapy.

As periodontitis progresses in the mouth, the degradation of oral tissue leads to bacteria transferring to the bloodstream and eventually to the gastrointestinal tract. Once *Porphyromonas gingivalis*, an oral pathogen associated with periodontitis, infects the gut, a shift in the microbiota occurs there just as it does in the mouth.

The research team compared the gut microbiota of immunotherapy non-responders to patients with periodontitis and found two bacteria strains, *Ruminococcus spp* and *Prevotella spp*, that are common in both groups. This discovery suggests that periodontitis could influence response rates to cancer immunotherapy.

The team found another connection related to receptor pathways targeted in immunotherapy treatment. They found that PD-1 and PDL-1 (a main immune checkpoint target in cancer treatment), as well as C5a and C3A (two complement components), are over-expressed in patients with periodontitis.
“When we were searching about the role of these receptors in immunotherapy, we found some publications saying that if you block these receptors, you could have an improved response,” said Henrique Matheus, DDS, MSc, former Research Fellow at the Skeletal Biology Research Center at MGH and a periodontology researcher at UNESP. “What we assumed was, if we have an increase of these receptors, the response rates could be lower when you treat these patients.”

Lastly, the team examined the more than 50 systemic inflammatory diseases linked to periodontitis, many of which overlap with adverse events associated with immunotherapy.

“We were seeing if the mechanisms through which periodontitis causes heart disease or diabetes could be similar to the ones caused when you have immunotherapy,” Matheus said. “And as we found that some of them were really similar, we could assume that if we have both conditions, it would be more likely that the patients would come to have diabetes or rheumatoid arthritis or myocarditis.”

Putting all of this together, the researchers suggest that the treatment of periodontitis could not only improve the efficacy of cancer immunotherapy but also serve as a non-pharmacological approach to improving overall health and patients’ quality of life.

“Something as simple as taking care of your teeth can prevent several systemic autoimmune disorders,” Pai said. “And the benefit of maintaining oral health in an aging cancer patient population to also have the potential to impact the efficacy and tolerance to cancer treatment seems like a low-hanging fruit to try to improve cancer outcomes.”

In addition to potentially improving cancer outcomes, the review suggests that treating periodontitis could reduce cancer disparities among racial and socioeconomic minority groups by improving response rates and reducing immunotherapy toxicity profiles.
DEPARTMENT NEWS

Oral Medicine, Infection, and Immunity

Dean William Giannobile, DMSc, DDS, has taken on a new research mentee as a part of the Osteology Research Scholarship. This is a one-year scholarship provided by the Osteology Foundation supports a young investigator in the field of oral tissue regeneration. The 2022 scholarship recipient is Balazs Feher, DMD, who started his appointment at HSDM on February 1, 2023. Under the guidance of Dr. Giannobile, Dr. Feher will expand his work on preclinical animal research on bone regeneration and clinical research on soft tissue regeneration.

Brittany Klein, DDS, was recognized by Wiley Publications for her research “Oral manifestations of immune-related adverse events in cancer patients treated with immune checkpoint inhibitors,” which was one of the most downloaded articles in the 12 months following its publication. The article proposes a grading system and management guidelines for clinicians treating oral manifestations of immune-related adverse events from cancer immunotherapy. Additionally, Dr. Klein was selected to give an oral presentation of her work on “Improving Access to Oral Medicine and Orofacial Pain Specialty Care” at the 2023 Annual Conference of the American Academy of Oral Medicine.

Roland Baron, PhD, DDS, and Francesca Gori, PhD, have been named co-directors of a research project within the newly created Center of Research Translation (CORT) on Osteoporosis Bone Anabolic Therapies. In collaboration with a multidisciplinary network of investigators across several Harvard Medical School-based institutions and the Imperial College London, the CORT will elucidate mechanisms of action of osteoporosis anabolic therapies to understand why they lose efficacy relatively rapidly over time, despite continued treatment. The Baron-Gori lab will explore the behavior of osteocytes, the most abundant cells in bone, in response to anabolic treatments in their project “The role of the osteocyte in responses to osteoporosis anabolic treatment in humans and mice.” This is a pioneering study of osteocyte morphology, transcriptome and treatment response in human tissue.
**Restorative Dentistry and Biomaterials Sciences**

Hiroe Ohyama, DDS, MMSc, PhD, DMD recently traveled to the Ribeirão Preto School of Dentistry, University of São Paulo (FORP USP) in Brazil to discuss and present her dental educational studies. Dr. Ohyama has found that student self-assessment abilities are associated with their performance in preclinical operative dentistry. She has partnered with FORP USP Professor of Operative Dentistry Regina Guenka Palma-Dibb, BDS, MS, PhD, to evaluate Brazilian students’ self-assessment skills. During her visit, Dr. Ohyama also visited the Faculty of Dentistry, University of São Paulo (FPUSP) to present her educational studies to support the improvement of student performance.

**Oral Health Policy and Epidemiology**

Catherine Hayes, DMSc, DMD, an HSDM alumna returned to the school last November as the program director for the Dental Public Health (DPH) advanced graduate education program. Dr. Hayes has an extensive background in public health research, policy, teaching and mentoring. She most recently served as the dental director at MassHealth, the Massachusetts Medicaid and Chip Program, and has previously served in leadership roles in academia as well as national and international organizations and government agencies. Her research focuses on oral health disparities and inequities in the field of dental public health and epidemiology.

Yuying Guo, DMD24, Catherine Simpson DMD24, and Stephanie Yang, DMD24, played a pivotal role in developing a set of policy statements recently adopted by the Association of State & Territorial Dental Directors. Their work, a Policy Statement on Social Determinants of Health and Improving Oral Health Equity, has been distributed nationwide to assist state and territorial dental directors, oral health programs, and health officials in strengthening their understanding of the issues and in guiding their decision-making.

Hend Alqaderi, BDS, DMSc, has been selected as a member of the AADOCR/IADR Committee on Diversity and Inclusion. As a member, Dr. Alqaderi will contribute to the Committee’s work to develop programs that promote diversity and inclusion within AADOCR and across the dental, oral and craniofacial research community.
GRANTS & AWARDS

Ang Cui, PhD, and Y. W. Stacy Cho, DMD, were selected to receive the Academy of Osseointegration and the Osseointegration Foundation’s 2023 Basic Science Research Grant. Their research, titled “Decoding Cellular Regulatory Circuits for Targeted Therapy Design for Peri-implant Diseases,” employs single-cell and single-nuclear RNA-sequencing to understand biological pathways associated with peri-implant diseases across different host cell types at the oral mucosa-implant interface. The collaborative team effort seeks to use this knowledge to draw correlations with patient clinical characteristics and ultimately inform clinical care.

The Department of Defense Congressionally Directed Medical Research Programs has granted Yingzi Yang, PhD, the Investigator-Initiated Research Award as a part of its Peer Reviewed Medical Research Program. Created in 1999, the program supports medical research projects of clear scientific merit and direct relevance to military health. Dr. Yang has partnered with Marc Wein, MD, PhD, an associate professor of medicine at MGH, on the project titled “Defining Novel Cellular Circuitry and Communication in Fibrous Dysplasia.” The pair will investigate hyperactive cAMP signaling in bone cells to better understand and eventually treat Fibrous Dysplasia and other musculoskeletal diseases.

Vicki Rosen, PhD, received a grant sponsored by the NIH/NIAMS for her project entitled “The role of ALK4 signaling in skeletal homeostasis and pathogenesis.” The project will examine how a new therapy that is currently in clinical trials for treating several common chronic diseases impacts bone mass, bone strength and bone repair potential.

A team of researchers from HSDM’s Department of Oral Medicine, Infection, and Immunity recently received a Foundation and Industry Grant from the Oral Reconstruction Foundation and BioHorizons. Included in the project, titled “The Biocompatibility of BioHorizon’s New Non-Cross-Linked Collagen Membrane in Conjunction with MinerOss X Plus for Providing Hard Tissue Regeneration in Socket Preservation Procedure,” are Lorenzo Tavelli, DDS, David Kim, DMSc, DDS, Jennifer Chen, DMSc, DDS, and Ana Khehra, MMSc25.
Dr. Tavelli has also received an Osteology Advance Research Grant along with Research Fellow Ning Yu, DDS, PhD. Their project is titled “Buccal strip gingival graft with a xenogeneic collagen matrix versus free gingival graft for keratinized mucosa augmentation at implant sites: A Randomized, controlled, clinical trial.” The project will assess clinical, volumetric, ultrasonographic, and patient-reported outcomes of two techniques for re-establishing an adequate amount of keratinized mucosa at implant sites.

Hawazin Elani, PhD, has accepted a grant from The Commonwealth Fund to examine how the transition from Medicaid to Medicare at age 65 affects dental coverage. The project entitled “The impact of transitioning from Medicaid to Medicare on coverage and access to dental care” assesses the transition's influence on patients' oral health, use of dental services, and out-of-pocket spending.

Felicitas Bidlack, PhD, has been awarded an NIDCR R01 grant aimed at finding protective treatments to prevent early childhood cavities in North American Indigenous children. Partnering with Dr. Bidlack on the project are Jacqueline Starr, PhD, a lecturer on medicine at Brigham and Women's Hospital and Robert Schroth, DMD, MSc, PhD, a researcher in the field of Early Childhood Caries at the University of Manitoba.

Brittany Seymour, DDS, MPH, received two awards this year for her work pioneering global oral health. She was honored as the Dental Educator of the Year in the DrBicuspid.com Cuspies Awards for the global oral health courses she developed that have been adopted by dental schools and organizations in 30 countries. She was also recognized with the Velji Faculty Leader in Global Health Innovation award on behalf of the Consortium of Universities for Global Health. Dr. Seymour was chosen for her many years of service and innovation including her leadership over the CUGH Oral Health Interest Group.

Malak Al-Hadlaq BDS, DMSc candidate, will accept the Lester Burket Memorial Award at the upcoming Annual Conference of the American Academy of Oral Medicine in Savannah, Georgia. Dr. Al-Hadlaq will also present her research titled “Novel Management Approach to Oral Leukoplakia: Topical Imiquimod Treatment” at the conference. Each year, the AAOM selects one basic and one clinical award winner in honor of Dr. Lester Burket, a pioneer oral medicine education.
STUDENT RESEARCH DAY 2023

Malik Farraj, DMSc23 Geriatric Dentistry
Dental Care Utilization Among US Older Adults ≥65 with Depressive Symptoms and Difficulty with Physical Functioning A Study of Trends From 2011 to 2018

David Wu, DMSc23 Periodontology
Hydrogel Viscoelasticity Modulates Migration and Fusion of Mesenchymal Stem Cell Spheroids

Yu-Chiao Wu, DMSc23 Research Academy
Resolvin E1 Actions on Axin2+ Dental Pulp Stem Cells in Experimental Pulpitis

Morgan Celistan, MMSc23 Endodontics
Race, Bias, and Root Canals: Investigating Treatment of Post-Endodontic Pain

Kendal Haddad, MMSc23 Periodontology
Novel Use of Placental Membrane as a Palatal Wound Dressing Post-Free Gingival Harvest

Sondos Alghamdi, MMSc23 Dental Public Health
Association Between Diet Quality, Tooth Loss, and Dental Caries

Bradley Bousquet, DMD23
How Much Opioid Medication Do Patients Need After Orthognathic Surgery?

Shaida Parsaei, DMD23
Role of Sfrp4 in Bone Repair and Regeneration

Paulina Miller, DMD23
Reduction in Pit-and-fissure and Proximal Caries in Sealed Primary Molars
NEW RESEARCH STAFF

Ellana Haakenstad, MPH, has joined the Office of Research as the new Research Program Administrator. In this role, Ellana will provide administrative leadership and support to both student and faculty research. She will help implement the school’s research strategic goals, coordinate research education curriculum, assist with managing projects, identifying and applying to grants, organize HSDM research events, and communicate with other research institutions. With extensive experience in research project management and student mentoring, Ellana brings her expertise and love of research to the faculty and students at HSDM.

Yangchen Jin, BA, joined the Department of Developmental Biology in April as a Visiting Scholar. He is located in the Yang Lab, where he conducts research to understand how Hippo signaling in bone forming cells regulate bone growth aging and injury repair. Jin completed a Bachelor Degree of Medicine in 2021 at Southern Medical University in Guangzhou, China, and is now a medical postgraduate at the university.

Yu Jin, PhD, joined the Yang Lab in March as a Research Fellow in Developmental Biology. Prior to this role, Dr. Jin conducted research at Southern Medical University, where he also completed his studies, exploring the cellular heterogeneity in alcohol-induced osteonecrosis of the femoral head using single-cell sequencing. At HSDM, he works on research projects studying mouse skeletal biology and diseases.

Jimin Han, PhD, a Research Fellow in the Yang Lab, began his work at HSDM in March. Dr. Han earned his degree in Cell Biology from Tsinghua University in Beijing, China. In his new role, Dr. Han’s research focuses on understanding the cellular and molecular mechanism whereby the Hippo/Yap/Taz pathway regulates liver tumor formation and metabolism.

Rana A. Sedky, BDS, MDSc, DDSc, joined the Department of Restorative Biomaterials Sciences as a Research Associate working with Hiroe Ohyama DDS, MMSc, PhD, DMD Predoctoral Director of Operative Dentistry. Dr. Sedky is a full-time faculty member at the Department of Operative Dentistry, Ain-Shams University in Egypt, where she received her BDS as well as her master and doctorate degrees in Operative Dentistry. Beside her teaching role and research in dental materials, Sedky is the director of the dental education development in her school. At HSDM, she has been conducting dental education research and participating in lecture/seminar series for minimally invasive restorative dentistry.
UPCOMING EVENTS

Class of 2023 Commencement Day
Thursday, May 25
• 6:45am–12:15pm Morning Commencement Exercises in Harvard Yard
• 12:00–1:30pm Class Day Lunch reception for graduating DMD/MD students in HMS quad
• 2:00–4:00pm Class Day Diploma Ceremony for DMD/MD graduates in HMS quad

HSDM Alumni Day
Friday, June 2 8:00am–4:30pm in REB, 188 Longwood Ave
The program will include remarks from Dean William Giannobile, an update from the HDAA, a symposium with CE credit, a social lunch, and tours guided by students. Alumni can register online at hsdm.harvard.edu/hsdm-reunion.

Advanced Education in Esthetic Implant Dentistry
Monday, June 5–Wednesday, June 7 at the HSDM campus
Course participants will receive presentations from periodontists, orthodontists, and oral surgeons covering different strategies for delivering safe and predictable treatments for patients requiring collaborative work from specialists in dentistry. Please contact Dr. David Kim at dkim@hsdm.harvard.edu for questions about tuition and registration.
Harvard School of Dental Medicine is proud to present the first Global Symposium on Artificial Intelligence in Dentistry on November 3-4. Held at the Harvard University Science & Engineering Complex (SEC), the event will bring together dental researchers, scholars, and industry leaders from around the world for dynamic presentations and a lively exchange of ideas about the impact of rapidly changing technological innovations in the field of health care and dentistry. To register or to submit an abstract, visit aisymposium.hsdm.harvard.edu.

PUBLICATIONS

Developmental Biology


**Oral Medicine, Infection and Immunity**


Mountain RV, Langlais AL, Hu D, Baron R, Lary CW, Motyl KJ. Social isolation through single housing negatively affects trabecular and cortical bone in adult male, but not female, C57BL/6J mice. *Bone*. 2023 Apr 10.


Satheeshkumar PS, Blijlevens N, Sonis ST. Application of big data analyses to compare the impact of oral and gastrointestinal mucositis on risks and outcomes of febrile neutropenia and sepsis in patients hospitalized for the treatment of leukemia or multiple myeloma. *Supportive Care in Cancer*. 2023 Mar 4.


**Oral and Maxillofacial Surgery**


## RESTORATIVE DENTISTRY AND BIOMATERIALS SCIENCES


Poudel SB, Ruff RR, Yildirim G, Dixit M, Michot B, Gibbs JL, Ortiz SD, Kopchick JJ,


**Oral Health Policy and Epidemiology**


Persell SD, Riedy CA. Obstacles and Opportunities on the Path to Improving Health Professions Education and Practice: Lessons From HRSA’s Academic Units for Primary Care Training and Enhancement. *Annals of Family Medicine*. 2023 Feb.


**Multi-Departmental**


Submit questions, comments and HSDM news to mallory_hackett@hsdm.harvard.edu