



**HARVARD**  
School of Dental Medicine



# 2019

## DEAN'S REPORT



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# MESSAGE FROM THE INTERIM DEAN

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As interim dean of Harvard School of Dental Medicine, I've had the opportunity to reflect on the School's progress over the last fiscal year from a new perspective. It is evident that many of the programs championed by Dean Bruce Donoff have had a lasting impact on the education of our students, the strength of our research endeavors, and the clinical success of our teaching and faculty practices.

Our students often cite the strong relationship between dentistry and medicine fostered through HSDM's curriculum as a leading factor that brought them to HSDM. This report highlights the student experience at HSDM and the many ways our students immerse themselves in opportunities to learn and grow and make a difference in the overall health of their patients. In addition to their academic accomplishments, I'm delighted to see our students engaged in volunteering with special needs patients and becoming leaders in promoting diversity in dentistry.

HSDM is able to support unique programs and student opportunities through the generosity of its alumni, donors, and friends. Funds raised in this fiscal year topped \$2.6 million. This

vital funding will go to new fellowships and programming in support of pre- and post-doctoral students. Research funding has also been on an upswing. This report contains 50 different active research projects underway in HSDM laboratories, and through partnerships around the globe. Increasingly, HSDM's reach extends far beyond the bounds of 188 Longwood Avenue, as our faculty continue to be involved in international projects in China, Costa Rica, India, Japan, Vietnam, Rwanda, and other countries.

The financial outlook for HSDM is sound, and the School is on solid footing as we prepare for a new dean to take the helm. As co-chair of the search committee for the new HSDM dean, I'm excited by the outstanding candidates we've met who will influence the future of HSDM. In the interim, I look forward to steering the School through this transition and working with HSDM's dedicated faculty and staff to support our exceptional students so that we may continue the School's commitment to excellence in education, research, and clinical care.

## **Vicki Rosen, PhD**

Interim Dean, Chair and Professor  
of Developmental Biology



# Education

Dr. Tien Jiang works with a student in the Preclinical Lab.

## LEADING BY EXAMPLE

Junior faculty serve as a vital resource to students, devoting their time to mentoring students at critical moments in their studies. When the graduating class of 2019 chose teaching faculty members to honor at graduation, it's not surprising they chose two HSDM alumni who have been in their shoes. Drs. Peter Grieco, DMSc15, instructor in Restorative Dentistry and Biomaterials Sciences, and Tien Jiang, DMD14, instructor in Oral Health Policy and Epidemiology, were recognized by this year's graduates as Outstanding Teaching Faculty for their work as teachers and mentors.

Additionally, Dr. Jiang was recognized with the Massachusetts Dental Society's Ten Under 10 Award for her contributions to the profession, the community, and organized dentistry.



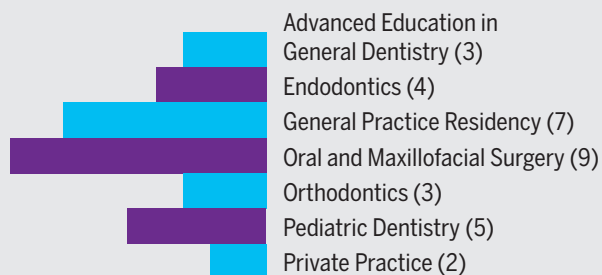
**“Dr. Jiang can often be found staying late in the clinic or assisting in the preclinical lab at any time of the day.**

She is beloved by students for her patience and calm demeanor. Even before she began clinical instruction, Dr. Jiang was eager to help us develop treatment plans for our more complex cases, and she continually offers a fresh perspective which has informed how we approach dentistry.”

**“Dr. Grieco serves as the predoctoral Prosthodontics director, but some of us like to refer to him as ‘Harvard Hope.’**

From our long days in FRTx to the scramble to finish graduation requirements, Dr. Grieco makes each transition as seamless as possible. To get a sense of how much the students admire and respect Dr. Grieco, stop by his office hours on Wednesday afternoons and you will find a long line of students.”

## Class of 2019 Postgraduate Plans



## DMD CLASS OF 2022

Enrollees in the Class of 2022 hail from 16 different states, with Massachusetts being the most represented (16%). They come to HSDM from 28 different colleges and universities. Their undergraduate majors are primarily in the sciences with 55% majoring in a branch of Biology, 19% majoring in Biochemistry, and 8% majoring in Chemistry. Several students completed a second major in the Humanities or Social Sciences (14%) and about half of the class pursued a minor. Approximately one-third of the class took one or more years off before matriculating into dental school.



**1013**  
APPLICATIONS

**36**  
ENROLLEES

**4.8%**  
ADMIT RATE

**3.91**  
AVERAGE GPA

## Graduate snapshots



“Twenty years ago, I went to the dentist with a mouth full of cavities and left with the dream of becoming a pediatric dentist. **I hope to be an inspiration for my patients in the future.**”

— Jillian Muhlbauer, DMD19, pediatric dentistry resident at Children’s National in Washington, D.C.



“**Never in this lifetime would I have expected my journey to place me here.** From small town Alaskan kid to Harvard-educated, I cherish my roots and those who helped me get here.”

— Babeck Ebadpour, DMD19, oral and maxillofacial surgery resident with the U.S. Air Force San Antonio Military Medical Center



“**The strong link that HSDM fosters between the medical and dental fields has influenced my research interests** and has shaped how I view my role as an oral health care provider.”

— Erica Shapiro Frenkel, PhD17, DMD19, orthodontics resident at the University of Washington





# Student Life & Learning

## ADVOCATING FOR SPECIAL NEEDS PATIENTS

HSDM students had the chance to learn first-hand about caring for patients with intellectual disabilities through volunteer opportunities that took them around the globe.

Last spring, several predoctoral students traveled to Abu Dhabi, UAE, the site of the 2019 Special Olympics World Games, to participate in Special Smiles, a program that provides dental screenings and care to athletes. During the Games, Special Smiles provided screenings to over 3,400 of the more than 7,000 athletes from 170 countries in attendance. The HSDM team was led by Dr. Neeta

Operation Mouthguard, an HSDM student-run organization, provides oral health education and custom-made mouthguards for local children and teens.

Chandwani, assistant professor of Developmental Biology, and director of predoctoral Pediatric Dentistry. Chandwani encourages her students to learn about treating patients with intellectual disabilities as a rewarding and essential part of their training. The students worked one-on-one with athletes diagnosed with intellectual disabilities such as Down Syndrome, autism, and Fragile X syndrome—a group that often faces hurdles in receiving care.

“It is essential to normalize the dental setting for these athletes, so that going to the dentist is not just associated with getting a tooth pulled or scary-sounding drills but rather dental hygiene education and preventive care,” said Nick Demeo, DMD21. “We also stepped outside of the Special Smiles screenings to support these athletes in the stands. I believe the athletes seeing the dental team in that



setting showed them we not only cared about a healthy smile, but a happy one, too,” he added.

HSDM students also joined dental students, staff, and faculty from other Boston schools of dental medicine to volunteer locally at the Special Olympics Massachusetts Summer Games hosted at Harvard University. Working again with the Special Smiles program, they provided oral health screenings and education, fabricated mouthguards, and applied fluoride varnish for athletes. The dental students gained a greater understanding of the special needs of individuals with intellectual disabilities and have become advocates for their care.

**“At the Special Olympics, we interacted with athletes with special healthcare needs from all over the world...and they came with extreme determination, drive and passion. I’m grateful for this experience because it inspired me to make treating and advocating for patients with special needs an important part of my future career.”**

– Eshani Patel, DMD20



## Promoting Diversity in Dentistry

For the past two years, HSDM students and faculty have taken time over their spring break to travel to historically black colleges and universities (HBCUs) to introduce undergraduate students to dentistry and share their experiences as minorities in dental school.

Aisha Ba, a third-year DMD student, and Brian J. Swann, MPH08, assistant professor of Oral Health Policy and Epidemiology, traveled to Morehouse College, Spelman College, Oakwood University and Howard University this spring. The year before, Jeffrey Taylor, now a fourth-year DMD student, made a similar trip.

“The reason I was so motivated to do this was that in order to solve most of the issues of access to care, and for HSDM to be a leader in integrating medicine and dentistry for the benefit of patients, we need to be training providers who come from and understand the issues in the communities that face the greatest burdens of disease,” said Ba. “Diversity improves dental care for everyone,” she added.

Ba, Taylor, and Swann realized the HBCU students they met were often well qualified for admission into dental school but didn’t consider applying to Harvard thinking they wouldn’t fit in.

“At all the schools we asked them, ‘When you think of Harvard, what do you think of?’ They never considered seeing themselves here. It was important to talk with these students and reassure them that there is a place for them at Harvard and that Harvard has a warm and welcoming environment, and you can be successful here,” said Ba.

“I am hoping it will become a new model for HSDM that makes a positive impact by training a diverse group of oral health providers,” said Dr. Swann.







## GENEROSITY EXPANDS DIVERSITY AND INCLUSION PROGRAMMING

Diversity and Inclusion was the topic of a week-long lineup of events last spring that featured speakers on the topics of diversity in dental education, race and gender equity in dentistry, and culturally competent, accessible care for patients with different needs.

The week's events were made possible by the generosity of donors Drs. Anne Koch and Allen Ali Nasseh, MMSc97.

"Presenting a Diversity and Inclusion Week is important because as clinicians we need to be providing culturally competent health care," said Dr. Anne Koch former director of the postdoctoral program in Endodontics at HSDM. "Health disparities among diverse communities are both significant and very real. We need to do better

as health care providers," she added. Koch, an advocate for transgender health issues, presented a talk on *Culturally Competent Care for the Transgender Patient*.

Engaging talks were offered each day at noon in the REB Auditorium, followed at 3pm with dynamic performances by dancers, musicians, and singers, as well as artwork, ethnic foods, and hands-on demonstrations celebrating diverse cultural traditions.

The weeks' events also featured a special unveiling of a portrait of a significant figure in HSDM's history, Robert Tanner Freeman, DMD 1869, the first African American to graduate from Harvard Dental School, and the first to earn a dental degree in the United States.

**"Diversity of thought and opinion is the backbone of sound thinking. I'm hoping to do my part in supporting HSDM's approach to diversity and education."**

– Dr. Allen Ali Nasseh







**“The goal of increasing access to our health care system is a challenge on many levels.** However, it is my sincere hope that by contributing to diversity and inclusion programming at HSDM, we can create a system where all patients feel welcomed, regardless of their personal status.”

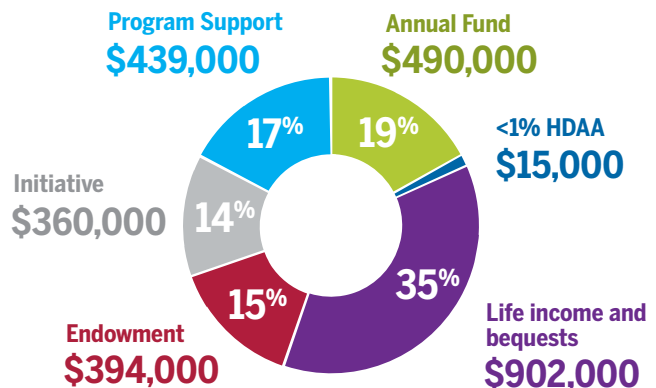
– Dr. Anne Koch

## BEQUEST CREATES A NEW FELLOWSHIP IN PERIODONTOLOGY

A bequest in the amount of \$500,000 from Michael Barnett, PD73 (Periodontology), established an endowed fellowship for HSDM Periodontology residents who have future career aspirations in leadership positions. Barnett graduated from Columbia Dental School and received specialty certificates in Oral Pathology from University of Washington’s School of Dentistry and in Periodontology from Harvard School of Dental Medicine. Both programs generated a lifelong interest in innovation and research. He held faculty appointments at several dental schools including the University of Louisville, State University of New York at Buffalo and at Morristown Medical Center. Perhaps his most lasting contribution was as senior director of Dental Affairs and Oral Technology Development for Warner Lambert (later Pfizer) where he guided research and technology development.

### Funds raised in FY19

More than \$2,600,000



“Michael was an active research leader and member of organized dentistry. His career represented the ideals of HSDM’s mission and **we know that his generous bequest will assist others to choose careers in academics, research, or public service.”**

– Dr. Howard Howell, A. Lee Loomis Professor of Periodontology



# Clinical Care

Tom Ferlito, DMD19, treats longtime Harvard Dental Center patient Susan Pillsbury.

## PATIENT RELATIONSHIPS AT THE HEART OF DENTAL CARE

As the only school of Harvard that provides direct patient care, Harvard School of Dental Medicine has a special relationship with members of the surrounding Boston community—many of whom become patients at the Harvard Dental Center. Over 41,000 patients receive care through the Faculty Group Practice or the Teaching Practices Advanced Graduate and Predoctoral Clinics.

What keeps patients returning to the Harvard Dental Center is not only the high level of care, but being part of the student learning experience, as was chronicled in a *Harvard Gazette* article.

“Going to the dentist isn’t supposed to be fun, but it’s a lot of fun here,” said Winthrop Reed, a patient for the past six years. “What makes it fun is the

learning, the academic atmosphere, and the bright young people. The professors are just outstanding. It’s just being in this environment. I really enjoy it.”

A predoctoral student may see 60 or more patients in the course of their program. Some may come in once for a simple procedure, and others on a regular basis. Tom Ferlito, DMD19, was astonished to hear that his patient Susan Pillsbury had been coming to the Harvard Dental Center for over three decades. She first came as a student herself from MassArt across the street, then kept returning year after year.

“It’s cool seeing someone like Susan coming here for 35 years ... knowing all the people Susan helped teach over the years as well,” Ferlito said.

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“Going to the dentist isn’t supposed to be fun, but it’s a lot of fun here. **What makes it fun is the learning, the academic atmosphere, and the bright young people.”**

— Winthrop Reed, Harvard Dental Center patient



The experience is a win-win for patients and students alike, with patients receiving care at a discounted rate and students gaining experience. The clinical experience students receive is a key component of their education.

"It is in their clinical training that they take the first steps as dental/medical professionals," said German Gallucci, executive director of the dental center and the Raymond J. and Elva Pomfret Nagle Associate Professor and chair of Restorative Dentistry and Biomaterials Science. "We see them transitioning to the different stages of their clinical experience, becoming confident clinicians at the end of their education."

## Harvard Dental Center by the Numbers

 **41,979**

Active Patients as of July 2019

 **29,008**

Patient visits to the Teaching Practices (FY19)

 **19,073**

Patient visits to the Faculty Group Practice (FY19)

## NEW CLINICAL PROVIDERS AND STAFF JOIN HDC

The Harvard Dental Center (HDC) welcomed new providers and staff this year including Neil Thomas Griseto who joined HSDM as an instructor in Restorative Dentistry and Biomaterials Sciences. Griseto studied dentistry at the Dublin Dental University Hospital attached to the University of Dublin, Trinity College and graduated in 2006. He also completed his prosthodontics residency at the University of Texas Health Science Center in San Antonio in 2019. He will focus on DMD Implantology and Digital Dentistry while providing support to the various didactic blocks of the HSDM curriculum.

Reshma Menon, DMSc17, joined the faculty as a lecturer on Oral Medicine,



Infection and Immunity. Menon studied dentistry at the Sri Ramachandra Dental College, Chennai, India. In 2012, she received a certificate in oral medicine and orofacial pain from New York University School of Dentistry, and she received a DMSc degree and certificate in oral and maxillofacial pathology from HSDM in 2017. She has didactic instruction and clinical supervision responsibilities in the predoctoral and advanced graduate education oral and maxillofacial pathology programs.

Quinton Wesley joined the Harvard Dental Center in a new role as Assistant Director of Dental Assistants (DA's). Quinton comes to HSDM from UPenn School of Dentistry where he was Dental Practice Administrator. He oversees all schedules and functions of the DA's across the HDC.



# Global Impact

The University of Rwanda's first graduating class of dental surgeons.

## CELEBRATING RWANDA'S FIRST DENTAL SCHOOL GRADUATES

With a population of more than 12 million people and fewer than 40 registered dentists, the graduation of 10 new dentists last year at the University of Rwanda was a historic milestone for the advancement of the nation's oral health.

Since 2011, Harvard School of Dental Medicine (HSDM) has been a leading partner in the effort to launch the first dental school and bachelor of dental surgery degree program at the University of Rwanda.

**"Given the connection of oral health to overall health, and the potential for preventive care to mitigate disease, it was critical that dentistry be included in the HRH program in Rwanda."**

– Jane Barrow, associate dean for Global and Community Health

Donna Hackley, instructor in Oral Health Policy and Epidemiology, spent the past five years working with colleagues in Rwanda. "It is some of the most challenging, enjoyable, and rewarding work I've ever done," Hackley said.

The new School of Dentistry is the result of the Human Resources for Health (HRH) program started by Partners In Health, the Clinton Health Access Initiative, and the Rwandan ministries of health and education. The program was created to advance health education and improve health care delivery systems in the country. A team of Rwandan, HSDM, and University of Maryland faculty collaborated to build the dental school's educational infrastructure from the ground up. In August 2013, the new school welcomed its inaugural class into the five-year dental surgery degree program.



“Some of the students had never experienced a dental visit and did not know any dentists,” Hackley said. “This was not only a new school, but totally new territory for them.”

The graduation marked the culmination of many years of work for the various partners, faculty, and students. HRH funding will continue to provide support as the School of Dentistry launches a new teaching clinic, newly renovated lab spaces and classrooms, and areas for radiology, infection control, and patient records.



### Tackling oral cancer in India

India has one of the highest rates of oral cavity cancers in the world, with over 75,000 new cases diagnosed annually, making it the second most common cancer in the country after breast cancer. Alessandro Villa, assistant professor of Oral Medicine, launched a program in India with the goal of enhancing the early detection, diagnosis, and survival outcomes of oral cancer in Viramgam, Gujarat.

Phase one of the project aims to increase the awareness and recognition of oral lesions, oral potentially malignant disorders, and oral cancer through a coordinated education campaign directed toward healthcare providers and the general public. Phase two focuses on developing and implementing strategies to reduce referral and diagnostic delays in patients suspected of having a diagnosis of oral cancer. The goals of this multifaceted project include increasing the confidence and consistency of healthcare workers in undertaking oral cancer examinations and counseling their patients about risk factors and improving the efficiency of referrals so that patients receive a diagnosis at an earlier stage with the intent of reducing overall morbidity and mortality.



## Collaborating on oral health education in China

HSDM convened a series of discussions at the Harvard Shanghai Center in the fall of last year with leadership from HSDM, as well as five universities in China and one in Taiwan. The educators gathered to discuss the current dynamics of education, research, care delivery, and population health strategies related to oral health in China. Several opportunities for collaboration emerged from the discussions including new partnerships with Fudan

and National Cheng Kung Universities to implement new dental schools; a new partnership with Zhejiang University to collaborate on educational, research, and exchange programs; and expansion of existing partnerships with West China, Jiao Tong and Peking Universities. HSDM is also exploring how to assist partner universities with specialized professional development for dental faculty pursuing a specialty track.

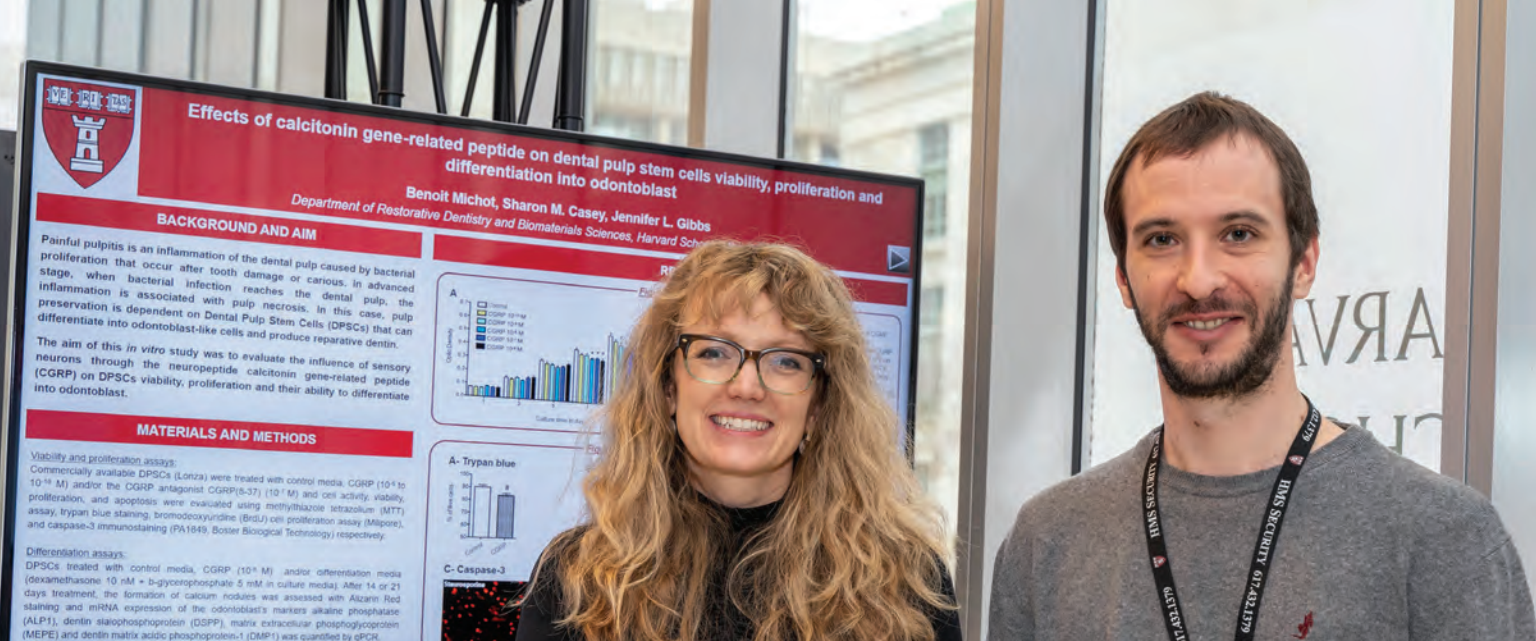


## CE COURSES ATTRACT INTERNATIONAL LEARNERS

HSDM's Continuing Professional Education programs provide valuable lifelong learning experiences for dental professionals. This year, HSDM faculty hosted 16 courses that attracted nearly 500 participants from 35 different countries. Courses were offered in Boston, MA; Shanghai, China; Tokyo, Japan; Venice, Italy and Seoul, South Korea. Topics included digital dentistry and digital workflow in implant dentistry, multidisciplinary approaches to advanced dentistry, synergism in dentistry, geriatric dentistry, healthcare education and more.







Drs. Gibbs and Benoit study how bacterial toxins produce pain.

# Research

## GETTING TO THE ROOT OF DENTAL PAIN

When Dr. Jennifer Gibbs joined Harvard School of Dental Medicine (HSDM) last year as assistant professor and director of the Endodontics program, she brought with her a background in neurobiology and research focused on nerve pain. Gibbs heads a translational research group focused on understanding the neurobiological mechanisms of orofacial pain with a focus on the nociceptors of the dental pulp.

“The dental pulp is seemingly hard-wired for pain. My research group found large diameter neurons, that typically convey the sensation of light touch, are more prevalent in dental pulp, while paradoxically, classical pain fibers are underrepresented. The reason for the unique innervation of the pulp is still not clear, and it remains intriguing to me,” Gibbs said.

Gibbs’ research also established that nerve injury signaling lasts long after tooth injury, suggesting a potential mechanism for persistent dental pain. This is important because it is still under recognized that routine dental procedures, like root canal treatment, can produce chronic pain.

“Complementing this work, we are currently conducting a clinical study measuring pain after endodontic surgery. This will help identify predictive clinical and biological factors associated with poor pain outcomes after surgery. The problem of persistent pain after dental injuries is difficult and important to understand, because the lack of recognition often leads to multiple unnecessary dental procedures,” she said.

**“The problem of persistent pain after dental injuries is difficult and important to understand, because the lack of recognition often leads to multiple unnecessary dental procedures.**

– Dr. Jennifer Gibbs

More recently, Gibbs' work with HSDM Research Fellow Dr. Benoit Michot has investigated the mechanisms by which bacterial toxins, such as lipopolysaccharide (LPS), produce pain. This is relevant to many painful oral conditions including pulpitis.

"We've been working to understand the receptors through which LPS activates pain fibers and found that it depends on two very different types of receptors," Gibbs said. "First, the classic toll-like receptor TLR4, which is established as the receptor for LPS, is essential to activate neurons. Interestingly, TRPA1, an important ion channel for detecting noxious stimuli on nociceptors, is also required. We think that the TRPA1 channel is a very good target for controlling bacterial mediated pain as occurs in pulpitis," she added.

## Student Research

All graduating DMD, MMSc, DMSc, and certificate students present their scholarly work to faculty evaluators at Student Research Day as part of their research requirements for graduation. This year's event, held in April, provided students with the opportunity to showcase their research in poster sessions and interact with faculty, staff, and peers. Awards were presented for the best student posters.

Fiorella Candamo, DMD19, was one of 11 graduating students who received honors in research. She presented her work "The microbiological and mechanical effects of silver diamine fluoride on caries arrest," at Student Research Day.



## Lab Highlight

Gili Naveh, assistant professor of Oral Medicine, Infection, and Immunity, was honored in FY19 with an Eleanor and Miles Shore Fellowship. The Shore Fellowship offers junior faculty at HSDM and HMS financial support during a critical time in their academic careers. The Naveh Lab studies the structure-function relations in the periodontal ligament (PDL) in particular and in ligaments in general.

Dr. Naveh received an ROO from NIDCR for her work entitled, "Tooth Movement derived by PDL Cellular Manipulations." Naveh hypothesizes that intentional modifications in the periodontal ligament structure will trigger changes in tooth movement. She is investigating how loss of function, or gain of non-physiological function, affects the non-uniformity of the collagen networks in the periodontal ligament and their correlation to the stiffness levels. The project aims to enable controlling tooth movement through structural modification of the periodontal ligament. This novel approach could dramatically transform the orthodontic discipline as well as benefit other medical disciplines.



# Funded Research Projects

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## FISCAL YEAR 2018-19 Listed by Primary Investigator

### **Roland Baron**

Cellular Mechanisms of PTH1R  
Activation with Osteoporosis  
Treatments  
**Funder:** Maine Medical Center

Comparison of the Osteocytic  
Responses to Abaloparotide Versus  
Teriparatide: First Phase  
**Funder:** Radius Health, Inc.

R-Spondin3 as a Target for Anabolic  
Bone Therapy  
**Funder:** NIH/NIAMS

PTH Resistance and Marrow  
Adipogenesis  
**Funder:** NIH/NIDDK

### **Chia-Yu Chen**

Electrophoretic Fusion of  
Perpendicular Type I Collagen into  
Titanium Nanotube for the Future  
Peri-Implant Ligament  
**Funder:** Osseointegration Foundation

### **Christina Cho**

Comparative Evaluation of Composite  
Resin Restorations Fabricated from  
CAD/3D Printing and CAD/CAM  
Technologies  
**Funder:** Academy of Operative  
Dentistry

### **John Da Silva**

Ryan White Dental Reimbursement  
Program  
**Funder:** HRSA/HIV

### **Hawazin Elani**

Health Reform and Oral Health  
Disparities: a Mixed Methods  
Evaluation  
**Funder:** NIH/NIMHD

### **Erica Frenkel**

The Role of Salivary Mucin in  
Preventing Cariogenic *Streptococcus*  
Biofilm Formation  
**Funder:** NIH/NIDCR

### **Bernard Friedland**

Development Initiative for Ethical  
Review and Oversight of Health  
Research Involving Human Subjects in  
Rwanda  
**Funder:** NIH/FIC

### **Jennifer Gibbs**

Targeting the Source: Bacterial  
Specific Pain Mechanisms in  
Dental Pulp  
**Funder:** NIH/NIDCR

### **Francesca Gori**

Biology of Cortical Bone of Long  
Bones and Calvarium: Role of Sfrp4 in  
the Local Regulation of Wnt Signaling  
**Funder:** NIH/NIDCR

### **Donna Hackley**

Human Resources for Health  
Program (HRH)  
**Funder:** Ministry of Health, Rwanda

### **Adam Hamilton**

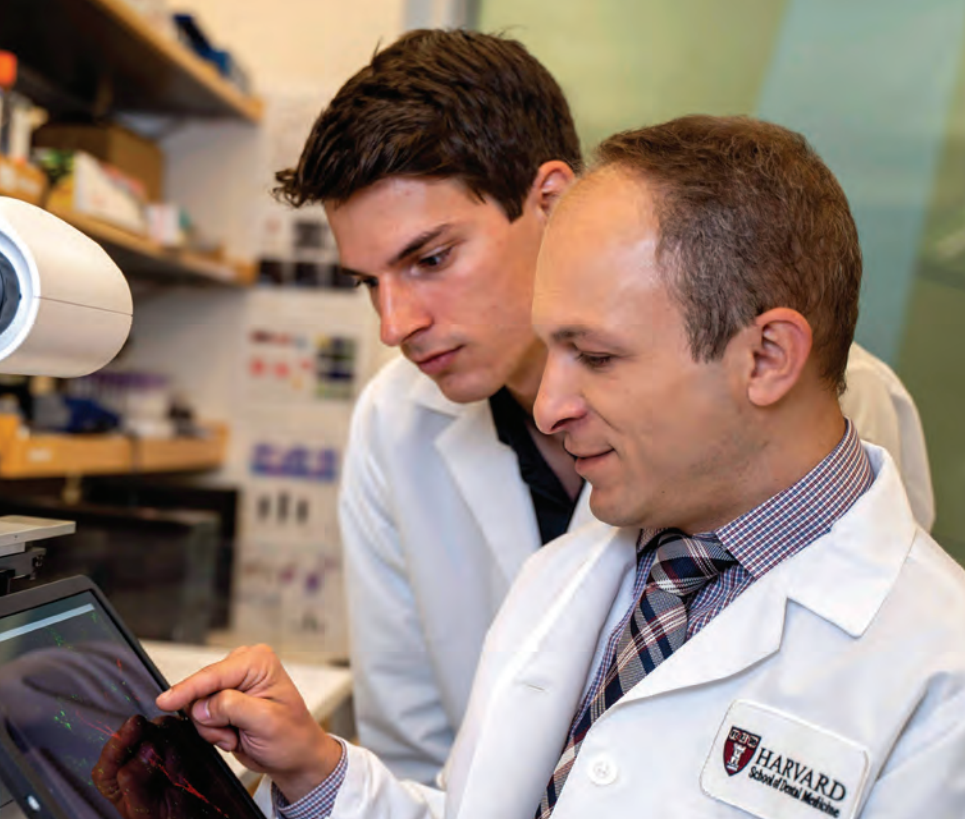
ITI: The Accuracy of Intraoral  
Scanning and Photogrammetry on the  
Clinical Fit of Long-span Frameworks  
**Funder:** ITI Foundation of the  
Promotion of Oral Implantology

### **Andreia Ionescu**

Hypertrophy and Inflammation in  
Osteoarthritis: Epistasis or Synergy  
**Funder:** NIH/NIAMS

### **David Kim**

Project 08-129 Stuari: 2018 Osteology  
Research Scholarship Programme  
**Funder:** Osteology Foundation



#### **Soo-Woo Kim**

Comparison of Volumetric Changes of Soft Tissue around Dental Implants following Connective Tissue Graft  
**Funder:** American Academy of Implant Dentistry

#### **Satya Kota**

Epigenetic Regulation of Skeletal Patterning and Morphogenesis During Development  
**Funder:** NIH/NIAMS

#### **Yefu Li**

Evaluation of a Small-Molecule Inhibitor of DDR2 as a Drug in Treatment of Osteoarthritis  
**Funder:** U.S. Department of Defense

#### **Eli Machtei**

Ossix Volamax: Lateral Ridge Augmentation Using a Novel Volume Maintaining Collagen Scaffold  
**Funder:** Datum Dental LTD

#### **Christine Murphy**

Academic Units for Primary Care Training and Enhancement  
**Funder:** Health Resources & Services Administration (HRSA)

BigMouth: Implementing Dental Quality Measures in Practice  
**Funder:** University of Texas Health Science Center at Houston

Equitable Care For Elders  
**Funder:** HRSA/Public Health Service

Measuring Occurrence of and Disparities in Dental Clinic Adverse Events  
**Funder:** University of Texas Health Science Center at Houston

#### **Shigemi Nagai**

Iwate Project for Curricular Changes  
**Funder:** Iwate Medical University

#### **Gili Naveh**

Tooth Movement Derived by PDL Cellular Manipulations  
**Funder:** NIH/NIDCR

#### **Bjorn Olsen**

A Mechanism for Tyrosine Phosphorylation of Extracellular Matrix Proteins  
**Funder:** NIH/NIAMS

Biogenesis of Extracellular Matrix  
**Funder:** NIH/NIAMS

#### **Elizabeth Perry**

Chemical Approaches to Rescue Human Mitochondrial Disease Mutations  
**Funder:** NIH/NIDCR

#### **Nora Renthal**

Child Health Research Career Development Award  
**Funder:** Children's Hospital Boston

#### **Vicki Rosen**

Adult Bone Mass Regulation by Type 2 BMP Receptors  
**Funder:** NIH/NIAMS

Cartilage-Bone-Synovium MPS: Musculoskeletal Disease Biology in Space  
**Funder:** Massachusetts Institute of Technology

Role of the First Secreted Tyrosine Kinase in Bone Development, Homeostasis, and Repair  
**Funder:** NIH/NIAMS

#### **Jeffrey Shaefer**

Inter-Professional Case-Based Pain Medicine Curriculum for Students of Dentistry, Medicine, Pharmacy, Psychology, and Nursing in Boston, MA  
**Funder:** NIH/NIDA

**Brittany Seymour**

CUGH-GH Starter Kit: Toward Competency-Based Best Practices for Global Health in Dental Education: A Global Health Starter Kit

**Funder:** Consortium of Universities for Global Health

Global Health Starter Kit for Dental Education

**Funder:** International College of Dentists USA Section Foundation Inc.2

The Global Health Learning Helix: Modeling 3D Global Health Education

**Funder:** Abundance Foundation

**Corneliu Sima**

Regulatory B Cells in Periodontal Disease

**Funder:** The Forsyth Institute

Regulation of Inflammation in T2D-Associated Periodontitis

**Funder:** NIH/NIDCR

PSI-SBIR: Optical Probe for Real-Time Assessment of Periodontal Health Status

**Funder:** Physical Sciences, Inc.

**Brett Stein**

A Quantitative Analysis of the Selective-Impression Technique Using CAD/CAM Technology

**Funder:** Greater New York Academy of Prosthodontics

**Jie Sun**

The Effect of Occlusal Vertical Dimension Increase in Lower Facial Height and Perceived Facial Esthetics

**Funder:** Greater New York Academy of Prosthodontics

**Mindy Truong**

ACTION Action for Children and Teens in Oral Health Need

**Funder:** ADA Health Foundation

**Malcolm Whitman**

An Herbal Derivative as the Basis for a New Approach to Treating Post-Traumatic Osteoarthritis

**Funder:** U.S. Department of Defense

Novel Nutrient-sensing Pathway Suppresses Pathologic Tissue Remodeling

**Funder:** NIH/NIAID

Role of the First Secreted Tyrosine Kinase in Bone Development, Homeostasis, and Repair

**Funder:** NIH/NIAMS

**Yingzi Yang**

Cellular and Molecular Mechanism of Hippo Signaling in Suppressing Liver Tumor Formation

**Funder:** NIH/NCI

Gas-Hedgehog Signaling in Intramembranous Bone Formation and Expansion

**Funder:** NIH/NIDCR

Mechanisms of Hippo Signaling in Alcoholic Liver Disease

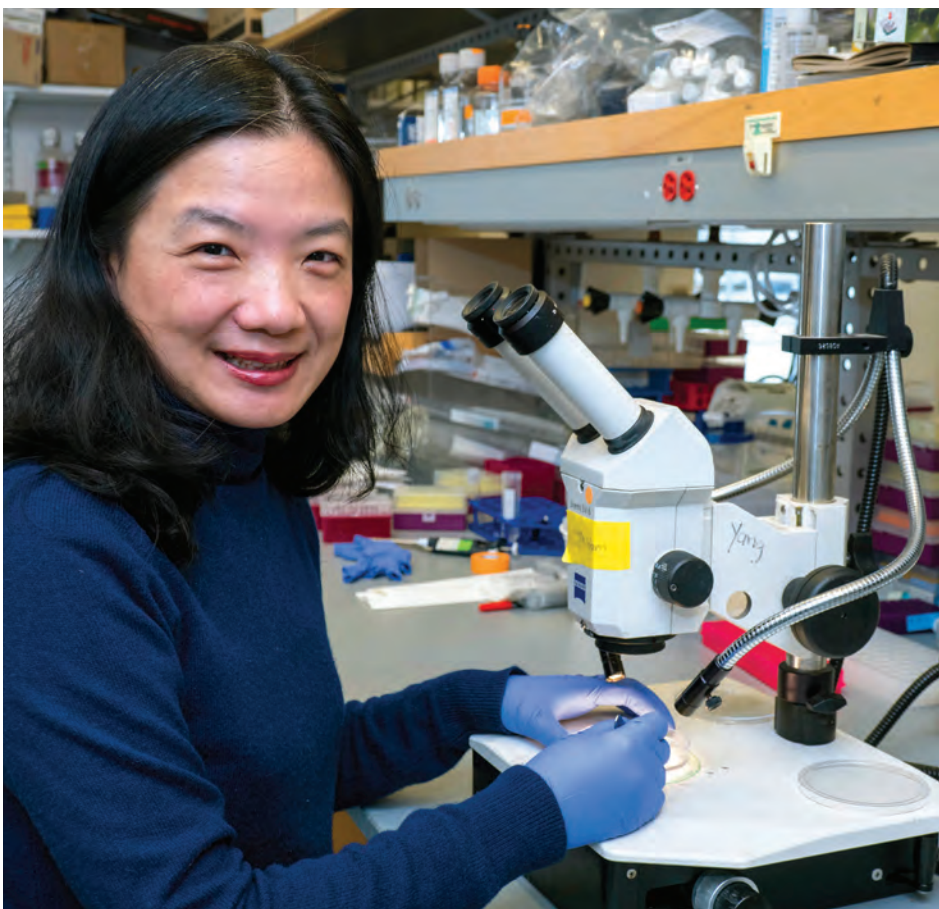
**Funder:** NIH/NIAAA

Molecular Mechanism of Wnt/Planar Cell Polarity Signaling

**Funder:** NIH/NIAMS

Mechanistic and Therapeutic Studies of Fibrous Dysplasia in a New Mouse Model

**Funder:** University of Pennsylvania







# Leadership

## CELEBRATING 28 YEARS OF SERVICE TO HSDM

In April, Bruce Donoff, DMD67, MD73, announced that he would step down from his role as dean by the end of the year to return to serving on the faculty. For over 28 years, Donoff guided the School successfully through many changes, leaving it in a stronger position for his successor.

"It has been an honor leading the School and having had the opportunity to work with incredibly talented faculty, students, and staff, all of whom are dedicated to improving human health and advancing our mission," Donoff said.

Throughout his tenure, Donoff moved HSDM forward with a broad vision for global and community oral health. A skilled oral surgeon and educator, he has been a strong advocate for the integration of oral health and

medicine as a way to ensure improved outcomes for his own patients and dental patients everywhere. He not only shaped the dental curriculum at Harvard but also influenced the way dentistry is taught around the country and the world.

"I'm grateful to have had a career that allowed me to treat patients, educate students, and advance research, all while being an administrator. It's rare for a dean to have that opportunity, and I am truly fortunate," he added.

A search committee for a new dean of HSDM was formed in the spring headed by HMS Dean George Daley, search chair, and co-chair Vicki Rosen, HSDM chair and professor of of Developmental Biology.

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**"Bruce, thank you for your spectacular service, we will watch with great interest what you do next. You have left the school a better place, which is what we ask of every dean of Harvard."**

– Harvard University President  
Larry Bacow

## ACADEMIC AND ADMINISTRATIVE DEANS

### INTERIM DEAN

Vicki Rosen, PhD, Chair and Professor of Developmental Biology

### VICE DEAN

John D. Da Silva, DMD87, MPH87, PD89, PD91, Associate Professor of Restorative Dentistry and Biomaterials Sciences

### DEAN FOR ADMINISTRATION AND FINANCE

Charles Frizzell

### ASSOCIATE DEAN, DENTAL EDUCATION

Sang Park, MMSc01, PD01, Associate Professor of Restorative Dentistry and Biomaterials Sciences

### ASSOCIATE DEAN, BASIC SCIENCE RESEARCH

Malcolm Whitman, PhD, Professor of Developmental Biology

### ASSOCIATE DEAN, TRANSLATIONAL RESEARCH

Yingzi Yang, PhD, Professor of Developmental Biology

### ASSOCIATE DEAN, GLOBAL AND COMMUNITY HEALTH

Jane Barrow, AB84, MS87

### ASSOCIATE DEAN, DEVELOPMENT AND ALUMNI RELATIONS

Wanda Mock, MA

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Vicki Rosen, PhD, Chair and Professor of Developmental Biology

### ORAL HEALTH POLICY AND EPIDEMIOLOGY

Christine Ann Riedy Murphy, PhD, MPH, Chair and Delta Dental Associate Professor of Oral Health Policy and Epidemiology

### ORAL AND MAXILLOFACIAL SURGERY

Maria J. Troulis, DDS, MSc, Chair of Oral and Maxillofacial Surgery and Walter C. Guralnick Professor

### ORAL MEDICINE, INFECTION, AND IMMUNITY

Roland Baron, DDS, PhD, Chair and Professor of Oral Medicine, Infection and Immunity

### RESTORATIVE DENTISTRY AND BIOMATERIALS SCIENCES

German Gallucci, DMD (Dr. Med. Dent.), PhD, Chair of Restorative Dentistry and Biomaterials Sciences and Raymond J. and Elva Pomfret Nagle Associate Professor

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## DEAN'S ADVISORY BOARD

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# Financial Summary

COMPARATIVE FINANCIAL STATEMENT	YEAR ENDED JUNE 30	2018	2019
<b>Income Summary</b>			
Student Tuition		\$9,592,412	\$10,897,164
Federal Sponsored Programs		7,129,808	7,428,522
Nonfederal Sponsored Programs		65,647	583,917
Current Use Gifts		1,090,460	1,207,939
Endowment		9,640,659	9,925,920
Services Income		8,934,222	9,412,238
Other Income		3,017,788	3,478,232
<b>TOTAL INCOME</b>		<b>\$39,470,996</b>	<b>\$42,933,932</b>
<b>Expenses Summary</b>			
Salaries and Wages		\$16,601,664	\$17,639,041
Employee Benefits		5,857,642	6,088,773
Scholarships		131,375	129,182
Supplies and Materials		3,550,697	3,650,183
Space and Occupancy		2,918,877	2,982,190
Interest		772,320	731,622
Depreciation		1,766,182	1,792,094
Services Purchased		3,629,772	3,875,791
Subcontracted Services		309,436	400,294
Other Expenses		3,745,382	4,224,965
<b>TOTAL EXPENSES</b>		<b>\$39,283,347</b>	<b>\$41,514,135</b>



**Thank you for supporting  
Harvard School of Dental Medicine.**



**HARVARD SCHOOL OF  
DENTAL MEDICINE**

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