

EXPLORATIONS

JOHN C. GREENE SOCIETY NEWSLETTER
SPRING ISSUE 2018-2019



This spring, UCSF Dental students visited Kenya, Africa as a part of a research project and for oral health outreach. Go to **page 3** for a recap of the trip and an insight into the UCSF Global Oral Health Fellowship's latest project!

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THE JOHN C. GREENE SOCIETY



The John C. Greene Society was founded in 2002 under the mentorship of Dr. John S. Greenspan and Dr. John C. Greene, whose leadership was instrumental to the dental school's rise to prominence as a premier research institution. A major goal was to encourage active student participation in meaningful research, bringing student research into alignment with the quality investigations being conducted by the UCSF dental faculty.



Since that time, the John C. Greene Society has grown into one of the most recognizable and respected student groups on campus. Student research participation at UCSF is at an all-time high, with dozens of students conducting fellowships each year, and many more traveling to present their findings at conferences across California, the country, and the world.



top: Leticia Chavez (D2) points to a chart on her research poster

middle: The audience listening to presentations at RCED

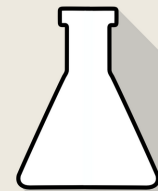
bottom: Daphne Chung explains her research to Dr. David Graham

LETTER FROM THE PRESIDENT



Dear Members of the UCSF Dental Community:

I am writing this letter with a heavy heart as it is my last one as the president of the John C. Greene Society. It has been a year filled with many wonderful memories and learning experiences for me. To highlight a few, in the Fall, JGS worked alongside the School of Dentistry for Research & Clinical Excellence Day. Congratulations again to Dr. Joel White for being elected as the JGS Mentor of the Year! In Winter, we held a workshop on writing a research proposal, led by our enthusiastic board members. In Spring, we collaborated with Perio Club and Ortho Club to hold clinical case study workshops. Throughout the year, JGS has also hosted weekly elective courses and quarterly kickoff events in hope to bridge the clinical and research communities at the School of Dentistry. The school has announced 27 Summer Dental Students Research Fellows this year. Congratulations on your extraordinary accomplishments, and I hope JGS will continue to work alongside you in preparation for this summer!



I took on the president position to serve the JGS board, but I feel that I have gained more than I have offered. It has been an honor serving such a prestigious society, and I hope to stay involved one way or another. I would like to thank my fellow board members and our supporters across the UCSF dental and research communities for making this year a truly amazing journey. A special shout out to Dr. Thomas Lang, associate dean for research; Dr. Lisa Berens, Chair of the UCSF Summer Dental Student Research Fellowship and JGS faculty sponsor; Dr. Ben Chaffee, interim JGS faculty sponsor; and Roger Mraz, Program Administrator for the Office of Graduate and Research Affairs. Thank you again for making this year a memorable one. Last but not least, I'd like to wish a warm welcome and best wishes to next year's board!

A handwritten signature in black ink, reading "Rebecca Kim".



Global Oral Health Research Fellowship's **TRIP TO KENYA**

During the most recent spring break, students and faculty from the UCSF School of Dentistry boarded a flight to Kenya for a unique research opportunity. Sunil Kapila, BDS, MS, PhD, and Benjamin Chaffee, DDS, MPH, PhD led six dental students, Vandan Kasar ('21), Punam Patel ('21), Claire Skach ('21), Allison Jan ('20), Sheela Lewis ('20), and Deepika Ramchandran ('19) as a part of the Global Oral Health Research Fellowship Program's two-week project in Kenya, a country in East Africa.

One of the goals of the program was to build partnerships and connections with local universities. During a visit to the school, they met the faculty, the dean, and participated in seminars led by Dr. Chaffee and Dr. Kapila on CAMBRA and interdisciplinary healthcare. It was a great opportunity to exchange perspectives on topics within dentistry.

In collaboration with dental students from the University of Nairobi, the UCSF fellows collected data on the accessibility of sugared-beverages and oral hygiene products in urban and rural Kenyan cities, such as Nairobi and Meru, respectively. They surveyed local stores to see how readily sugary foods and beverages were available based on pricing and convenience. Additionally, because fluorosis is a significant problem in these areas, the project also involved collecting samples and data on the fluoridation levels from drinking water sources. The group also investigated fluoride levels of the local toothpaste products to see if the fluoride content was accurately advertised.

On top of the UCSF's fellow's research on Kenyan caries risk factors, they took the opportunity to spread dental education in the local communities. To learn about their dental education and to provide oral hygiene instructions, the group visited schools, such as the Bishop Lawi Immathieu Secondary School (BLISS); community centers, like the Thiri Community Center; and orphanages, such as the Kithoka Amani Children's Home.

Using the information and feedback received, UCSF plans on returning to Kenya with a more focused instructional brochure describing how to maintain oral health and prevent oral disease. They believe that educating this underserved population will empower them to take care of their well-being. With this being the first year of the project, UCSF hopes to create a more sustainable operation that can be maintained moving forward

"I am truly humbled to have been a Global Oral Health fellow. This project has taught me that as global health researchers, we should strive to create projects that not only benefit the local community, but also can be sustained by our global partners. This year, we laid the groundwork for future fellows to continue striving toward this goal."

Allison Jan ('20)



"The GOH Fellowship not only offered an amazing insight into dentistry abroad and learning about a different culture, but it gave me a wonderful introduction to research at UCSF as well as the opportunity to work closely with faculty members. Because of our willing project mentors: Dr. Chaffee, Dr. Hoeft, and Dr. Kapila, I have learned much more about the research process and data analysis than can be taught in a class. This fellowship is an invaluable example of what UCSF offers its students and how it helps prepare them to be compassionate, skilled, and evidence based providers."

Claire Skach ('21)



"The GOH Research Fellowship was such an amazing and unique experience. I'm grateful to have participated in an opportunity that I don't think a lot of other dental schools have and that truly enriched my dental school experience. Even though I have a background in research, I have never been involved in a field research project done this way. Personally, it was very impactful and helped shape my future goals moving forward."

Punam Patel ('21) *pictured on the left*

"This was my first formal research experience at UCSF. It was a great learning experience developing a protocol for this project, preparing for the trip, and submitting an Institutional Review Board (IRB) for approval. I am grateful to the Global Oral Health Program at UCSF for funding this project and I'm extremely excited to see it going forward. Even if you don't have formal research experience, this opportunity is a great experience to get your feet wet."

Vandan Kasar ('21) *pictured on the right*



"I had a wonderful experience in Kenya, understanding a new culture, their history besides working with students from diverse backgrounds which made me realize the importance of communal spirit and its positive impact on people. I felt closer to my home in India, given its similarities. During my time in Kenya, every day I learnt something new including how to effectively communicate using non-verbal cues when language is a barrier. The stark disparities in healthcare between countries and societies only necessitates the need to build more of these partnerships and I am glad I got to play a small role in this pivotal project".

Deepika Ramachandran ('19)



ORIGIN STORY

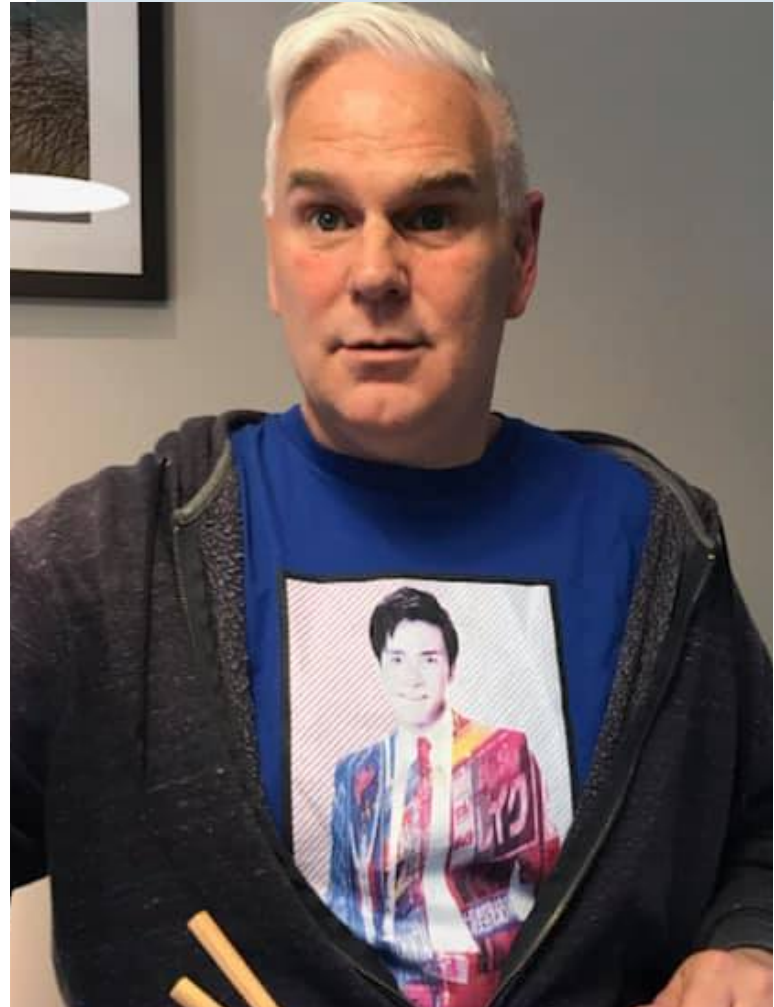
Meet Roger Mraz, UCSF's strongest vindicator.

Enigma to some, mentor to many, and baker of birthday biscuits to all...just who is Roger Mraz?

"Roger is someone who is always making friends, always caring for other people, and always encouraging us to chase after our dreams" says Susan Keefe (D1), skeptic of how good Roger's cookies are.

Hailing from Norfolk, Virginia, Roger received his Bachelor of Fine Arts in Theatre at Virginia Commonwealth University in Richmond, Virginia. When he graduated, he brought his talents to New York City, working as a Director to create captivating theatrical displays. In this chapter of his life, he found himself in a vibrant city with cultures, opportunities, and experiences foreign from anything in Virginia. In the 8 years he lived in NYC, he captured the attention of many with his wild productions and characters.

By 1997, Roger found himself seeking a change of pace, a new experience. Fortunately, an opportunity to work at Zurich Capital Markets came his way in their London office. He was quickly recognized by his colleagues for his abilities to seamlessly coordinate people and execute projects, a talent he developed through his training in theater. Yet, despite the job's amenities and a comfortable salary, when his time in London came to a close, he moved back to the United States.



Roger chose San Francisco as his next home as he had always dreamed of living here since his first visit many years prior. Little did he know an interview at UCSF School of Dentistry in 2008 would be the most significant turning point in his life.

In the 10 years that Roger has been at UCSF in the Office of Graduate and Research Affairs, he has greatly expanded the scope of his responsibilities, shouldering more and more projects as the need arose. He found himself increasingly involved in the Oral and Craniofacial Sciences Graduate Program, the Summer Dental Student Research Fellowship Program and in improving research accessibility to all students. Before he knew it, he has become a guide to those navigating UCSF and has become an established resource for faculty and students alike.

It's clear that Roger loves his job, and if you ask him why he'll tell you it's all due to the students at UCSF. "They are the future," he says, "and I am honored to know them and to play my part in helping them realize their goals."

Q: What is your favorite type of cookie (that you've made)?

A: I make a new favorite every month haha, but I think whenever I can put two unexpected flavors/textures that taste good together, that's exciting!

Q: How did you come about into collecting shoes?

A: While living in London, I discovered an amazing brand called Royal Elastics. Couldn't have enough pairs of them. From there I discovered really fun shoes made by a variety of brands, but mostly Vans and things I find on a site called Bucketfeet. It's safe to say my shoe collection is out of control.

Q: Who is your favorite superhero and why?

A: Any of what my friends call the "B Team" Avengers: Wasp, Yellowjacket, Scarlet Witch, Quicksilver, Vision. These are heroes that you wouldn't see in any other book other than The Avengers main title. That's what makes them special to me.

Q: When and why did you start baking birthday cookies?

A: Baking is about bringing joy, I think. Students bring me a great deal of joy, so it only makes sense to return it to them on their birthdays.

AADR Fellowship Program Nominees

Every year the UCSF School of Dentistry nominates 5 students conducting research to submit their proposals for the national AADR Fellowship Program.

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Tsu-Shuan Wu '22

My name is Tsu-Shuan, and I am currently a first-year dental student. This is my first time doing public health research, and I am very excited for this summer research project. My project aims to assess the roles of parental and household factors on youth tobacco prevention. We will use data from the Population Assessment of Tobacco Health (PATH) Study to evaluate the associations of household rules and parental awareness with youth tobacco use. The recent rise in popularity of non-cigarette tobacco products presents a public health challenge to both healthcare providers and parents. As a future healthcare provider, it is important to me to address youth tobacco prevention by raising public health awareness of current popular products and informing parents of the existence and signs of use of such products, especially if parents can play a role in tobacco cessation and prevention.

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Hello. My name is Daniel Kim. During this summer, I am excited to do research on dental implants. An important technological aspect of the dental implant is the integration of the implant with patient's bone; the process is called "osseointegration". Studies have been conducted to improve the osseointegration process. However, naturally occurring factors such as endogenous zinc (Zn) has been minimally investigated as a contributing factor for osseointegration in spite of its existence in newly forming bone. In this project, I will assess how strongly a dental implant is integrated to a rat bone using mechanical testing and correlate the data with the localization of the naturally occurring factors between the bone and the implant. The results of the study will further advance the osseointegration technology to increase the success rate of the dental implant treatment and thereby restoration of function.



Daniel Kim '22

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Hi everyone! My name is Susan Keefe and I am from Doylestown, Pennsylvania. I graduated from Pennsylvania State University in 2018 with a major in Biochemistry. I found my passion for research when I joined my undergraduate research laboratory studying the effect of transcription factors in stroke therapy using novel viral delivery systems. Coming to UCSF, I knew that I wanted to continue be involved with research and I joined Dr. Ophir Klein's lab fall of 2019.



Susan O'Keefe '22

My research focus is on Costello syndrome, a rare multiple congenital disorder caused by an activating mutation in HRAS. In Costello patients, the mutated HRAS causes dysmorphic craniofacial features that can impair the affected patients' quality of life. In my research, I will be utilizing a transgenic mouse model with an HRAS mutation similar to the mutation found in Costello patients to study the cranial defects that occur during development. I hope to further understand the cellular biology underlying cranial base malformation in Costello syndrome through my summer research and aim to further advance the diagnosis and treatment of cranial anomalies in Costello and other syndromes.

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Sarah Wong '22

I am currently in my 5th year of training in the UCSF Oral and Craniofacial Sciences DDS/PhD program. For my thesis, I joined the lab of Drs. Ralph Marcucio and Chelsea Bahney. With their unwavering support, I was able to defend my thesis last June and have since begun my dental training. Thanks to the generous support of the American Association for Dental Research (AADR) Summer Research Fellowship, I will be returning to my thesis lab this summer to complete a continuation project that I designed in relation to my thesis work. My research aims to identify the molecular regulation that governs endochondral bone fracture healing. In this process, a cartilage intermediate forms between the fractured bone ends and is later replaced by bone. Our lab was one of the first to discover that chondrocytes responsible for forming the cartilage intermediate transdifferentiate into osteoblasts that

form bone. The contribution of chondrocytes to new bone formation is significant and chondrocyte-to-osteoblast transformation is required for proper bone healing. While completing my thesis, I discovered that Canonical Wnt signaling is critical to chondrocyte transformation and that fracture repair can be accelerated through simulation of this pathway. My summer project seeks to identify the endogenous source of Canonical Wnt activation. This knowledge will provide key insight for the development of novel therapies, which can be applied to the treatment of fractures in both the craniofacial and axial skeleton.

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After graduating from high school, I was sure that his career choice in music was what he was destined to do. However, my career trajectory shifted towards the sciences after transferring to California State University, San Bernardino (CSUSB) where I graduated with his B.A. in Biology and minor in chemistry. I began to establish himself as a scientist in the laboratory of Dr. Nicole Bournias-Vardiabasis, whose lab largely focuses on aging and Alzheimer's disease using *Drosophila melanogaster*. Through a series of influential experiences, large exposure in the clinic and an innate passion to innovate the dental field, I set my long-term goal of becoming a dental clinician attending the University of California, San Francisco's Advanced Dual-Degree DDS/Ph.D program. As a graduate student, my motivation is to develop alternative drug and/or gene therapies that focus on patients who suffer from more advanced or chronic forms of periodontal disease (PD), ~8.5% of the U.S. population. These patients do not respond to conventional treatment methods compared to patients who present with more moderate forms of the disease, largely due to a pro-inflammatory transcriptional profile which is driven by oral pathogens such as the gram- negative spirochete, *Treponema denticola*. I am particularly interested in better understanding oral microbial-host interactions and how these interactions lead to the progression of oral pathogenesis through the modulation of cellular and tissue processes at the transcriptional level. Thus, by investigating into the cell populations, pathways, and gene regulatory network involved in periodontal pathogenesis, I am striving to develop the most efficacious strategies for better patient outcome. As a dental clinician, I hopes to make molecular connections underpinning similar chronic diseases such as osteoarthritis and gut dysbiosis, in an effort to bridge the gap between oral pathology and systemic health.



Sean Ganther
4th year DDS/PhD student

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Pregnant With New Ideas

A look into Improving the Oral Health of Two People at Once
with Dr. Lisa Berens



Preventive care has become one of the tenets of our profession. One of the fundamental principles of prevention is educating patients so they are empowered to take care of their own health. For pregnant women in particular, many do not receive dental care for a variety of reasons. However, this is an especially important time to maintain good oral health. The literature has shown that when gingivitis is left untreated during pregnancy, the disease usually persists after childbirth (1). In addition to periodontal disease, children whose mothers have caries are also more likely to have caries both as a child and during adulthood (2). Pregnancy is also a critical time to educate the mother about infant oral health. Both mothers and children have plenty to benefit from if this oral health diseases can be controlled early on (3). Dr. Lisa Berens seeks to accomplish this through her research in promoting oral health during pregnancy.

Together with her partner and co-principal investigator Dr. Sally Adams, Dr. Berens developed an oral health intervention for pregnant women attending group prenatal care in CenteringPregnancy (CP). In CP, pregnant women are grouped together with 8-12 other women of similar gestational age and attend ten sessions that address a range of health topics related to pregnancy, maternal and infant health. Despite CP being a nationally standardized program, oral health was not being consistently covered. The Centering Pregnancy Oral Health Promotion (CPOP) Intervention was designed to help build maternal oral health knowledge and skills, and anticipatory guidance for optimal infant oral health.

Drs. Berens' and Adams' preliminary R21 pilot study and a sub-study of UCSF's Center to Address Disparities in Children's Oral Health (CAN DO) showed significant improvements in both the oral health of these women and their infants; and just last year, she was awarded a grant from NICDR to test CPOP as a large randomized control trial. The study will take place at 6 community clinical sites, including the Homeless Prenatal Program in San Francisco and La Clinica dela Raza in Oakland.

This project is especially impactful because, with a brief, low-cost intervention, many women can improve their oral health and protect their infant's oral health. CPOP is readily scalable through the 300+ CP sites across the U.S. if it can be shown to be effective in the clinical trial. This makes it a particularly promising initiative in that the effects of the study can be seen immediately if it is successful.

Dr. Lisa Berens, a diplomate of the American Board of Dental Public Health, chairs the Division of Oral Epidemiology & Dental Public Health within the Department of Preventive and Restorative Dental Sciences. She is also chair of the Summer Dental Student Research Fellowship Program. As an educator, she is an advocate for broadening and elevating the dental profession to its higher calling of protecting and optimizing the oral health of all, and works to instill that calling and responsibility among dental students. As a researcher, she focuses on implementation science, translating evidence-based practices into interventions for specific populations such as for CP. Dr. Berens also works in close partnership with the San Francisco Department of Public Health to co-lead the CavityFree SF collaborative in implementing the San Francisco Children's Oral Health Strategic Plan. This involves developing sustainable initiatives through systems-level and policy-level change.

As a new mom herself, Dr. Berens knows firsthand the struggles in prioritizing oral health both during pregnancy and for her now 9 month-old baby. "It was difficult to find the time to attend my routine dental checkup and cleaning appointment while pregnant, and it's a daily struggle to brush my son's 2.5 teeth twice a day. However, I definitely don't put him to bed with a bottle full of milk or share spoons or other eating utensils" - both key messages in CPOP about infant oral health practices.

1. Paglia, L. "Caring for Baby's Teeth Starts before Birth." *European Journal of Pediatric Dentistry*, vol. 18, no. 1, 2017.
2. Weintraub, J A et al. "Mothers' caries increases odds of children's caries." *Journal of dental research* vol. 89,9 (2010): 954-8. doi:10.1177/0022034510372891
3. Haerian-Ardakani, Ahmad et al. "Relationship between maternal periodontal disease and low birth weight babies." *Iranian journal of reproductive medicine* vol. 11,8 (2013): 625-30.





top: Nick Hwang, Jonathan Han, Eric Lee, Sean Pairawan

middle: David Nguyen, Susan Keefe, Katie DiLeo, Trang Duong, Katherine Le

bottom: Jessica Ho, Daphne Chung, Rebecca Kim, Sarah Anne Wong

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The John C. Greene Society



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Newsletter Editor Notes

This is the last issue that the UCSF JGS Newsletter Team will be putting out this academic year. It has been great being the Newsletter Editor-in-Chiefs for the past year, and we are very proud of the steps the newsletter has taken forward.

It comforts us to know that the JGS Newsletter is in more than capable hands as the current Junior Editors transition into the new Newsletter Editor-in-Chiefs. They have brought great new ideas, design modernizations, and an invaluable passion to this newsletter.

On behalf of JGS and our team, we would like to thank UCSF and all of the readers for their constant support.

Sincerely,
JGS 2018-19 Newsletter Editors in Chief
Jonathan Han (Jonathan.Han@ucsf.edu)
Goutam Krish (Goutam.Krish@ucsf.edu)

Special thanks to...

Thomas Lang, PhD

Benjamin Chaffee, DDS, MPH, PhD

Lisa Chung, DDS, MPH

Roger Mraz



Left to Right: Nick Hwang ('22), Thomas Lang, PhD, Eric Lee ('22), Jonathan Han ('21).

Missing: Goutam Krish ('21)