Pursuing My Dream
ONE-YEAR NIH MEDICAL RESEARCH SCHOLARS PROGRAM

Dentistry for a New Generation
EVIDENCE BASED DENTISTRY

Connecting the Dots
ORAL HEALTH LITERACY AT TUSDM

Oral Health as a Human Right
A NATIONAL ORAL HEALTH STUDY OF RWANDA
CELEBRATING 150 YEARS AT THE TUFTS UNIVERSITY SCHOOL OF DENTAL MEDICINE

For 150 years, Tufts University’s School of Dental Medicine students, faculty, staff, researchers, and alumni have shaped the history of our school and the profession. Since 1868, our work has been guided by four primary commitments: to comprehensive dental education, dynamic and groundbreaking research, caring and devoted people, and service to our communities.

As we celebrate the School of Dental Medicine’s sesquicentennial, we reflect on the principles, legacies, and people that have shaped our history. Help us turn the legacies of our institution into the future of our profession.
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46th Annual Meeting of the AADR
Looking back at the events held in the 46th Annual Meeting of the AADR in San Francisco, CA in March 22-25, 2017.
47th Annual Meeting of the AADR will be held in Fort Lauderdale, Fla., USA - March 21-24, 2018

Bates-Andrews Research Day
2017 Bates-Andrews Research Day
Sneak peak into March 8, 2018 Bates-Andrews Day
Welcome to BSRG Newsletter!

Dear Readers,

Welcome to the student-run BSRG research newsletter, Dentēs!

This year, we decided to launch a new research newsletter ran by students titled "Dentēs." The word "dentēs" comes from Latin, meaning teeth. Since it was our first time publishing a newly titled student-run newsletter, it was definitely not easy. One of the challenges was bringing both the students and faculties to be involved in the newsletter. Although Dentēs is a student research newsletter, we wanted to feature faculties' research and their areas of interests as well.

The primary focus of the Fall 2017 newsletter was looking at oral health in aspects of public health, culture, human rights, and language. I, personally, want to thank all the students and faculties who gave their time to write articles and to be interviewed. We could not have successfully launched this newsletter without all of your help!

Shawn Kim D20 | Editor-in-Chief

Conducting research has been an integral part of my dental education. The field of dentistry excited me due to its interdisciplinary nature. I admired that dentistry was very much a marriage of science, medicine, and public health. The opportunity to conduct research allowed me to approach dentistry in a multidisciplinary nature. While I expected research to provide me an additional avenue through which I could learn about dentistry, I have continuously been surprised by the opportunities and learning it has given me.

I have had the privilege of developing unique relationships with faculty mentors. I have been able to apply the skills critical to successfully conducting my basic science bench work project, such as the importance of being methodical, exact, and organized, to my clinical training.

The Bates Student Research Group (BSRG) has provided me a community at TUSDM that has fostered my passion for research, intellectual curiosity, and constant learning. I have been able to gain leadership experiences through my involvement with BSRG that have pushed me to engage my peers. My experiences at TUSDM could not be complete without research, BSRG, and the community it has created for me. It has been an honor to act as a representative of BSRG and dental research at TUSDM during my time as a student.

Sama Abdul-Aziz D18 | President
The Bates Student Research Group (BSRG) is a student-run organization that promotes student research in dentistry and its related disciplines. Our main purpose is to foster an environment whereby students interested in enriching their dental education through research are encouraged to do so.

Mission:
- Inform students about the many different types of research opportunities available at Tufts in dental medicine, including basic science, clinical, materials, and public health research
- Support current student research and foster the research community at Tufts by facilitating opportunities for students to share and promote their research with peers and faculty
- Offer a range of student experiences to expose Tufts students to the latest research in evidence-based dentistry and expand our critical thinking skills
- Help students explore their own interests beyond the standard dental school curriculum

BSRG E-BOARD

Sama Abdul-Aziz, President

Shawn Kim, Public Relations Chair (Editor-in-Chief)

Jason Berglund, Public Relations

Alisha Anand, Vice President

Grace Kim, Treasurer

Andrew Lum (on leave at NIH)
"Research – it’s purpose is about thinking critically with the goal of contributing to progress in our profession. We are all familiar with the idiom “a fresh pair of eyes.” Student research yields new insight – your insight – to a science that benefits from different perspectives."

GERARD KUGEL
Associate Dean of Dental Research
Q: What was your research about at Tufts?

At Tufts, I was interested in understanding how variables in maxillary sinus anatomy can impact the occurrence of Schneiderian membrane perforation during sinus augmentation surgeries. Membrane perforation can negatively impact the overall procedure as well as the success of the bone graft and/or dental implant. I had a family member experience a membrane perforation in the past which piqued my curiosity and led me to Dr. Hur (Department of Periodontology), who has been instrumental to helping me shape my questions into a successful research project.

Q: What was the most interesting aspect of your project?

Overall, participating in research has enriched my entire dental school experience in ways I never would have expected and I’m extremely thankful for the opportunities I’ve encountered along the way. I’ve gained a lot of exposure to Periodontics, and expanded my knowledge of how to conduct research—beyond the traditional curriculum. It has been a lot of work, but I’m also a big believer in making the most out of every opportunity.

Q: What was your overall experience at 2017 AADR?

AADR 2017 in San Francisco was my first experience giving an oral presentation. It was much different from presenting a poster, and particularly intimidating once I found out I was the only student amongst the speakers in my session. Ultimately it was an eye opening experience that allowed me to practice my public speaking and ability to respond to audience questions. I would highly encourage anyone interested to give it a try—it will only help you become a better presenter!
Q: How did you hear about the NIH program and why did you decide to do this program?

As cliché as it sounds, many of today’s success stories are built on the foundations which were spearheaded by past individuals, and Tufts is no exception. Ever since I was a curious first year who stumbled into a lunch presentation about student research opportunities at the NIH, I’ve had this program on my mind. I was never fully committed to applying, but all of my mentors encouraged me to give it a chance since participating in a nationally recognized program such as this can open many doors in the future. Although it was a hard choice to leave my classmates in Boston, everyone along the way has been very supportive of my decision, and I know we’ll still keep in touch after graduation.

Q: What research are you doing at NIH?

I’m working with an immunology lab in the NIDCR branch (National Institute of Dental and Craniofacial Research) which studies mucosal barrier immunity in the oral cavity. At the NIH, there is a big focus on rare autoimmune diseases and this lab in particular sees patients with these conditions in order to improve our understanding of basic oral disease such as periodontitis. In addition to human patients, the lab also utilizes animal models with immune deficiencies to build on what we know about the pathogenesis and how to effectively approach treatment in the future.

If you like labels, you may call me an American Dental Association Evidence Based Dentistry (EBD) Champion. I study evidence based dentistry, write papers about it, I lecture on the concept, and I teach it at Tufts. I am fortunate to have a network of EBD colleagues across schools thanks to the ADA EBD program.

Evidence based dentistry (EBD) is a new paradigm for dentistry and dental education. I am especially excited by the concept that it is no longer acceptable to provide treatment for patients by rote as instructed by faculty. Now, students have new training that my generation never had to investigate best practices.

Today, it is acceptable and expected for students to challenge their clinical faculty with the latest information. EBD creates a dynamic learning environment that benefits students, faculty, and our patients.

My first acquaintance with the concept of evidence based dentistry was in 2011. I responded to an ad for the American Dental Association Evidence Based Reviewer Workshop. The workshop is a two day program that teaches techniques for analysis and critique of scientific.

This knowledge built on aspects of my public health education. As an educator, I believed that it would become important to share these skills with students.

I learned more about evidence based medicine, dentistry, and public health practice in subsequent lectures, publications, and workshops. I studied additional techniques to evaluate evidence and how to teach those techniques. The thought that I would be responsible to teach dental students how to practice more thoughtfully, by asking questions, finding and evaluating the evidence was very exciting.
The initiation of the Tufts University School of Dental Medicine spiral seminar series that we know as BaSiC SsSs dovetailed with my growing knowledge and experience. In addition, the DMD/MPH students receive more intensive training as a part of their 3 year program in dental public health.

The EBD program of the ADA offers training to individual dental school faculty and workshops at dental schools. Currently, I am part of a team of volunteer ADA members who are writing a chapter in a book on how to teach EBD in dental schools. We hope to create an out-of-the-box curriculum for dental schools where faculty require that kind of support.

I recommend that students who would like to expand their knowledge of EBD view webinars from the ADA (Http://ebd.ada.org), and the Center for Evidence Based Medicine (http://www.cebm.net/) in Oxford, England, attend courses and workshops, and read the EBD series in JADA published over the past few years.

Over the course of my career, EBD progressed from a curiosity to avant garde to industry standard. Today, in response to Committee on Dental School Accreditation (CODA) standards, many dental schools have EBD programs. An important distinction of the Tufts program is that our students have more practical experience using EBD in the clinic with their patients.

David Leader, D85, MPH13 is the lead practice coordinator on the second floor and the director of the DMD/MPH Dual Degree Program.

DMD/Master of Public Health
This program is open only to Tufts DMD students. Students can apply to the program during their second year of dental education.

Application Deadlines:
Spring: October 25th – some flexibility
Spring: December 15th – final deadline
Fall: April 15th – rolling admissions

For more information on the program, or to discuss your options, please contact:
David Leader, DMD, MPH
Program Director
David.Leader@tufts.edu
Q: What was your research about at Tufts?

For the past couple of years, I have been creating and evaluating a patient education booklet. This booklet focuses on oral health and disease prevention and it is to be used as a chair side tool to help student dentists communicate with their patients in the TUSDM predoctoral clinic. In the medical field, there is a large communication gap between doctors and patients in the way information is sent, received, and interpreted. I wanted to create something to help assist the dentist in communicating with their patients, in hopes of narrowing the communication gap between the patient and provider.

Q: What was the most interesting aspect of your project?

The most interesting aspect of my research was being able to combine things that I learned in my previous profession as a 5th grade teacher and applying it to dentistry. We learned to speak about dentistry in a certain way, and often times we forget that the language we use to communicate to our patients can sometimes be misunderstood. I truly believe that my research can make a difference in the field by helping dental students learn effective communication strategies early in their careers.
Q: How did you find your mentor and choose your research topic?

Before coming to Tufts, I had never conducted research before. I didn’t really know where to start. I met with Eileen Doherty and spoke to her about the topics I was interested in and she referred me to multiple professors who were involved within those areas of research. It actually worked out really well because the ideas I discussed with Eileen lined up perfectly with my mentors and I was able to jump into the project that she had already started. This made my transition into a researcher very easy.

Q: What’s next for your research and when you graduate?

We are currently at a very exciting phase within my research. We are testing the effectiveness of the booklet as an intervention in the TUSDM predoctoral clinic. I hope that this booklet will help increase patient’s knowledge, understanding, and retention of oral health information. It is exciting because this part of my research will give me a better understanding of what educational strategies and tools can be used to improve patient and provider interaction within the clinic. In the future, since I am graduating this summer, I would like to find someone who can continue to build on the sound foundation we have created for this educational tool.

Jason Berglund, who has returned to complete his fourth year this fall, spent his time at NIH Medical Research Scholars Program (MRSP) studying the origin of tumor-induced osteomalacia, a rare disease characterized by benign tumors that overproduce a hormone called fibroblast growth factor 23 and, ultimately, leads to bone pain, fractures, and muscle weakness.

“The MRSP provides us with the time and opportunity to focus on a research question. The ability to develop and own a project is a critical part of the scientific process, and it’s given me a much better idea of what a research career would look like.”
Making Health Literacy a Priority at TUSDM

By Nicole Holland, DDS, MS

Take a moment to consider the many steps it takes to choose between root canal treatment and a dental implant. Which one will have a better outcome? When should I start treatment and how long will the procedure take? How much will it cost? And, of course, will any of this hurt? Before a patient can even sit in the dental chair, one must select a provider (is he/she the right doctor for this procedure?), deliberate insurance benefits (how much will this cost me?), and figure out the clinical consequences (can I go to work the next day?), among numerous other elements. We must also remember the many steps leading up to that one particular decision.

Our healthcare system is complex and ever-evolving, as evidenced by the perpetual deliberations among lawmakers on the national stage, all of which guarantee consequent policy changes. Additionally, American society has in the past and will continue to experience increasing diversification of its populace. Undoubtedly, oral health systems are changing as well. In this time of opportunity, the dental field is at an advantage in comparison to our peer disciplines. Why?


Both primary care to prevent disease and tertiary reconstructive medicine. Whether one faithfully brushes and flosses twice daily or has neglected dental care for years, the need to smile, eat, speak, and function hits close to home for everyone.

Would you agree that we have an incredible opportunity to affect change in the health and lives of our patients? Then what does health literacy have to do with oral health? Well, in a nutshell, everything!

The most widely accepted definition of health literacy is “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.”

Health literacy goes far beyond an individual’s ability to read health information. Low health literacy has been linked to poorer health outcomes.

To begin understanding why that may be the case, one must consider the many demands of the healthcare system – demands affecting individuals (patients, providers, caregivers, etc.), communities, payers, policies, etc.

Language, culture, and literacy are intimately intertwined. Patient-provider communication (a large focus of our health literacy curriculum at TUSDM) is important from the perspectives of preferred language, cultural needs and preferences, as well as patient education. Dental providers speak and breathe the language and terminology of oral health, throwing around phrases such as mesiobuccal, implant abutment, and lymphadenopathy – but how often do we consider whether a patient is confused between the word “cavity” and “caries”? Or between a “cleaning” and a “prophy”? Better yet, how does one’s childhood upbringing, socioeconomic status, educational attainment, current stress level, etc. influence decisions throughout the spectrum of care?
The TUSDM Health Literacy Intensive (HLI) is one way in which we are making health literacy actionable at Tufts. The Intensive is a year-long, elective course that takes an in-depth look at health literacy in relation to the healthcare system at-large as well as how we apply it here at Tufts. Our goal is to not only develop an appreciation for how health literacy applies to practice as a future dentist but to also champion ongoing initiatives at TUSDM at the clinical, institutional, and community levels.

While the Intensive is currently only open to first- and second-year students, it is our hope that health literacy is and remains a priority for all members of the TUSDM community.

*Learning dentistry means students, residents, faculty, and staff are exposed to health literacy at all times.*

Whether communicating with patients and caregivers, conducting research, working in the community, or navigating the school hallways, all members of the TUSDM community should strive to make TUSDM a health literate organization for those we serve.

Nicole Holland, DDS, MS is the Assistant Professor and Director of Health Communication, Education, and Promotion at the Department of Public Health and Community Service.

2018-2019

**TUSDM Health Literacy Intensive**

coming soon...

Looking for a unique leadership opportunity at TUSDM? Interested in honing skills beyond the classroom to enhance your care for patients throughout dental school, residency, and practice? Then...

...consider applying to the 2018-2019 TUSDM Health Literacy Intensive!

The TUSDM Health Literacy Intensive is a year-long elective open to a maximum of 16 first- and second-year dental students. The Intensive is an early-career opportunity for students to go beyond what is learned in the classroom and delve deeper into the intersection between health literacy and dentistry in a small group setting. Upon successful completion of the Intensive, participants will receive a TUSDM Certificate of Completion.
I am currently working with Dr. Jonathan Garlick and studying fibroblasts from diabetic patients. In our lab, we culture fibroblasts that were reprogrammed into induced-pluripotent stem cells (iPSC) then differentiated to fibroblasts. These iPSC-derived fibroblasts may have altered wound-healing phenotypes that could offer future novel therapies for treating diabetic foot ulcers. During the past summer, I investigated links between fibrin degradation and the microRNA that may regulate this process. I have identified possible microRNA candidates and will continue to characterize these iPSC-derived fibroblasts.

This year I’ve been working to study rates of complications (both short and long term) associated with the fairly uncommon coronectomy procedure. Coronectomy is a term used for the removal of the crown of a tooth, leaving the root intact, to avoid damage to the inferior alveolar nerve (IAN). The technique offers a promising alternative to extraction in cases where roots are in close proximity to the IAN. Unfortunately, because it’s a more recently developed procedure, there’s not much data on its postoperative effects. My ongoing retrospective record review study aims to show the safety of the coronectomy procedure and discover the frequency of associated postoperative complications. Results thus far demonstrate the procedure’s success, showing very few complications. Looking towards the future, we will continue to increase the sample size of the study, and we hope to take radiographs of patients that have undergone coronectomy procedures to track potential root migration over the years.

I performed a retrospective chart review of the patients seen at the Oral Medicine Clinic who had a diagnosis of hyposalivation. To treat their condition, one of two different medications were prescribed. The two medications were Pilocarpine (Salagen®) and Cevimeline (Evoxac®). Pilocarpine and Cevimeline are muscarinic acetylcholine receptor agonists that stimulate salivary gland function. The primary aim of this investigation was to run a head-to-head comparison for the efficacy of Pilocarpine and Cevimeline in patients with hyposalivation. The secondary aim was to determine the frequency of side-effects related to the use of the two medications. Although a difference in efficacy was not found between Pilocarpine and Cevimeline, Pilocarpine was associated with more reporting of side effects. The next step in this research is to present these findings to insurance companies with the hope that, even though Pilocarpine is currently covered by insurance, Cevimeline will be covered by insurance in the near future, due to its efficacy and few side effects. I hope to present my research at the American Association for Dental Research in March 2018.
John Morgan, DDS, MS is an Associate Professor of the Department of Public Health and Community Service. Dr. Morgan's research focuses on access to care issues and oral health status information for the developmentally disabled population. He is also actively promoting global oral health initiatives, and leads a dental project providing an improved oral health workforce and sustained oral health infrastructure to a community in Zambia.

**What is your oral health research about?**

My research focuses in population based studies. My current oral health research focuses on a study of the national oral health status of Rwanda. Prior to that my focus was on the oral status of adults with intellectual and developmental disabilities.

**What is the most interesting aspect about your research?**

The field studies I am involved with are often very rewarding. It is interesting to select a population with very little known about their oral health and develop a study to create a snapshot of the oral health of that population. Working in the communities is fascinating and the results can be used to develop oral health education, prevention and disease management strategies, support advocacy platforms and inform policy.
How and why did you decide to do a national oral health study for Rwanda?

The original idea for Rwanda was to help create oral health support services for a cancer infusion center in Rwanda. This project was supported by the Cummings Foundation. While in Rwanda in 2013, we were approached by an oral stakeholder group including representatives from the Rwanda Ministry of Health, the Rwanda Dental Surgeons Association, the Rwanda Dental Therapists Association and the University of Rwanda School of Dentistry. Although they were very much in favor of the proposed project for the infusion center, they asked if would be possible help Rwanda gather data regarding oral health. There was no national oral health data available to understand oral health needs of the country. Advocating for oral health infrastructure including the education of dentists and dental therapists was difficult with no data to understand the oral health needs of the country. The data would also be used to inform policy and oral health strategies. The Cummings agreed to a change in focus of our efforts in Rwanda.

What were some of the challenges you encountered conducting this study in Rwanda?

The challenges were many. The 1994 Genocide in Rwanda destroyed much of the human and physical infrastructure of Rwanda’s health and education sectors.

In an effort to build oral health capacity in Rwanda, the development of the country’s first School of Dentistry at the University of Rwanda was launched in 2013. At the same time there was very little capacity for oral health research in the country. Most of the oral health research infrastructure had to be developed. This took time to build relationships with government, academic and community partners to bring the study to fruition. Other challenges included a limited in-country oral health work force, reaching isolated villages, road conditions, weather – rainy season, electrical coverage for our computers, finding suitable conditions for 15 data collection sites and accommodation and food in very rural locations. I would like to mention the Rwanda support team made all of this possible and were very willing to help us in any way possible.
What are some of the human rights aspects regarding oral health?

Understanding oral health as a human right is a challenge for many people. Oral health is part of overall health and there are conventions that support health as a human right. It seems we could argue that oral health should be part of overall health in a human rights context. For many reasons oral health is often not specifically included in the human rights framework. The idea of the highest level of attainable oral health for everyone may be the best way to think about this issue. This could take into consideration resource limitations, but keeps the momentum to try to improve oral health for everyone.

What is next for you?

I am hoping to work more with the oral health stakeholders in Rwanda to develop effective national oral health strategies to improve oral health. This may include research to further understand the best way forward to develop oral health policy contextualized for a country with a developing economy. Additionally our research team would like to adapt the oral health data collection system we developed for Rwanda to be used for oral health research domestically and abroad.

Summer Fellowship Application Deadlines:

- D20: Tuesday, February 20, 2018
- D19: Tuesday, February 20, 2018
- D21: Monday, January 29, 2018

Want to know more about how to get started in research at TUSDM? Check out Eileen Doherty’s great tips on the next page!
How To Start Research

By Eileen Doherty

Students wanting to do research can often get overwhelmed with the process if they don't take a step-by-step approach. Many of our students have never done research before and really don't know where to start – that's okay! Often, it's as easy as talking it through with someone in order to determine really what type of research might be a best fit for you.

Here are some questions you should ask yourself in your pursuit for the perfect research project:

1) Is there a particular faculty member that you feel comfortable with and would like to work with? Did you find one particular lecture to be very interesting?

2) Is there a particular field of dentistry that most interests you and you would like to explore further?

3) Do you have a specific time frame available that you need to fit this project into?

4) What type of study design most interests you? Retrospective patient record review? Bench study? Survey?

5) Are you interested in basic science research? Dental materials? Public health? Educational research?

6) What exactly do you want to get out of your research experience? (In-depth knowledge, closer relationship with faculty, help getting into post-grad program, publishable paper, travel opportunities)

Once you narrow down your interests a bit, start talking to people! Talk with classmates, upperclassmen who have done research, faculty members, and come by the Dental Research Administration offices on the 15th floor. We have abstract booklets from past Bates Days, student posters to look at, and staff members who can help to point you in the right direction. There are also many resources online – your first stop should be the TUSDM predoctoral research website. From there, you can access information about all of the funded student research programs and presentation opportunities.

There are many fantastic ways to get involved in research at Tufts - just make that first step!
Upcoming Calendar:
Yankee Dental Congress: 1/24/2018
Bates Student Research Day: 3/7/2018
AADR/IADR General Session: 3/21/2018
ADEA Annual Session: 3/17/2018