

**BOSTON  
UNIVERSITY**

# BUMC

## 14<sup>th</sup> Annual John McCahan Medical Campus Education Day

*Showcasing Educational Innovation and Scholarship on the  
Boston University Medical Campus*



**Wednesday, May 29, 2019**

**School of Medicine**

**Graduate Medical Sciences**

**School of Dental Medicine**

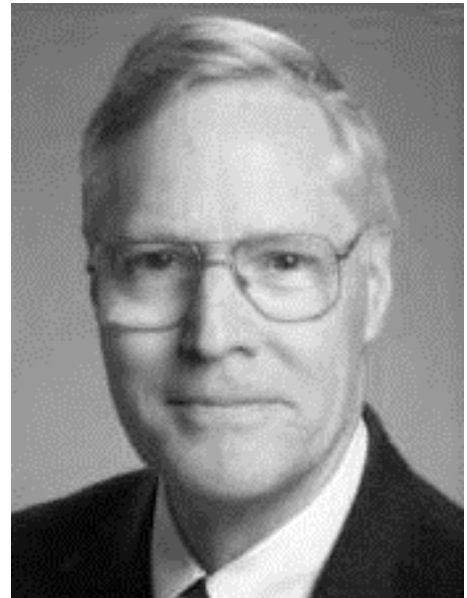
**School of Public Health**

## John F. McCahan, M.D.

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Dr. John F. McCahan served as the Associate Dean for Academic Affairs at Boston University School of Medicine from 1976 until 2006. From November 2003 through May 2005 he also led the School of Medicine as the Acting Dean.

Dr. McCahan received his B.A. and M.D. degrees from the University of Pennsylvania. He subsequently trained in internal medicine at the Upstate Medical Center, Pennsylvania Hospital and Guy's Hospital, London. Following two years of service in the United States Public Health Service at the National Communicable Disease Center in Atlanta, he joined the staff at Lincoln Hospital in the Bronx and the faculty at Albert Einstein College of Medicine. He was appointed Director of the Department of Medicine at Lincoln Hospital in 1972. During this period, Dr. McCahan was centrally involved in student and post-graduate training programs and became particularly invested in the care of the poor and the provision of health care services to underserved populations.



Following his recruitment to Boston University in 1975 as Associate Professor of Medicine, Dr. McCahan continued clinical practice with underserved populations through the Home Medical Service (now the Geriatrics Home Service). He was a regular preceptor of fourth-year students on home visits to frail elders. He developed a teaching program in family medicine and became a Professor of Family Medicine following the establishment of that department in 1997.

After his appointment as Associate Dean for Academic Affairs in 1976, Dr. McCahan oversaw numerous revisions and reforms of the M.D. curriculum. He guided a major change in curriculum governance and chaired the Medical Education Committee, created in this reorganization. Throughout his career, he had a particular interest in the patient-doctor interaction and the teaching methodologies that resulted in effective clinical skills. He has actively taught, studied, and administered a variety of educational formats from large group lectures to one-on-one teaching, feedback, and evaluation. In recognition of his excellence as an educator, Dr. McCahan received the Frederick Jackson Teaching Award and faculty membership in Alpha Omega Alpha.

In addition to serving as chairman of numerous administrative and educational committees, Dr. McCahan was the principal investigator of several grants and contracts, including a PHS-BHP Grant to Establish a Department of Family Medicine; a PHS-BHP Predoctoral Training Grant in Family Medicine; and a Community Partnerships with Health Professions Education Initiative, W.K. Kellogg Foundation. He served as Boston University School of Medicine liaison and author of the Boston section of a plan for a statewide Area Health Education Center program. Throughout the years' he earned the admiration of his colleagues for his ability to articulate and implement a clear vision of modern medical education.

Boston University Medical Campus  
Office of the Dean and Provost

72 East Concord Street, L103  
Boston, Massachusetts, 02118-2526  
617 358-9600  
busmdean@bu.edu

Karen Antman, M.D.  
Provost, Medical Campus  
Dean, School of Medicine  
Professor of Medicine



May 5, 2019

Dear Colleagues,

Welcome to the 14<sup>th</sup> annual **John McCahan Medical Campus Education Day**. Dr. McCahan served as distinguished Associate Dean for Academic Affairs at Boston University School of Medicine for 30 years. We are pleased to offer Boston University medical campus educators a day of stimulating speakers, workshops, and innovative ideas to inform and inspire.

Our key note presenters are a team of two collaborating scientists, Aza Allsop, PhD and Burce Birren, PhD:

**Aza Allsop, PhD**, who is currently completing a medical degree at Harvard Medical School, will soon begin a residency focused on public psychiatry. He did his graduate and postdoctoral training in the Tye lab at the Picower Institute for Learning and Memory at MIT. He studies how social information is processed and integrated in the brain to clarify the neural circuits underlying fundamental social behaviors. Deconstructing these mechanisms should help us understand how social groups function and the implications for the function of society at large. Dr. Allsop also works to increase awareness of social biases, cultural inclusion and social equity and cohesion.

**Burce Birren, PhD**, the Director of the Genomic Center for Infectious Diseases at the MIT - Harvard Broad Institute, founded the Broad's Diversity Initiative and institute-wide mentoring program. He leads workshops for faculty on research and culturally aware mentoring practices and teaches classes and workshops for trainees on scientific communication, mentoring relationships and the differential impact that social factors have on success in science based on many aspects of our identities. He is a lifetime SACNAS (**Society for Advancement of Chicanos/Hispanics and Native Americans in Science**) member and a Master Facilitator with the National Research Mentoring Network.

This day provides an opportunity to think about teaching principles and to connect with your colleagues. Posters and oral presentations will cover a variety of topics to reevaluate and improve how we facilitate learners, including: evaluation, testing and assessment techniques, educational models and methods. Hope to see you there!

Sincerely,

A handwritten signature in blue ink, appearing to read "Karen Antman".

Karen Antman, MD  
Provost, Medical Campus  
Dean, School of Medicine

# ACKNOWLEDGMENTS

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John McCahan Medical Campus Education Day is an initiative of the Medical Education Committee (MEC), supported by Provost and Dean Karen H. Antman, M.D. The MEC acknowledges with appreciation the work of the following faculty and staff who have contributed to the planning of this event:

## **The John McCahan Medical Campus Education Day Planning Committee:**

### **School of Medicine**

Hee-Young Park (Medical Sciences & Education)  
Theresa A. Davies (Medical Sciences & Education)  
Fadie Coleman (Medical Sciences & Education)  
Paige Curran (Medical Sciences & Education)  
David Flynn (Medical Sciences & Education)  
Stacey Hess-Pino (Medical Sciences & Education)  
Maura Kelley (Medical Sciences & Education)  
Elaine Lee (Medical Sciences & Education)  
Kathleen Swenson (Medical Sciences & Education)

Lindsay Demers (Medicine)  
Caroline Mulligan (Affiliate Sites, Medical Education Office)  
Melissa Paz (Medical Education Office)  
Jeffrey Schneider (Emergency Medicine & Graduate  
Medical Education, BMC)  
Jodie Trainor (Medical Education Office)  
Patti Gibbs (Medical Education Office)  
Elizabeth Yellen (Affiliate Sites, Medical Education Office)  
Aaron Young (Physiology)  
Ann Zumwalt (Anatomy & Neurobiology)

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### **Henry M. Goldman School of Dental Medicine**

Yoshiyuki Mochida (Molecular & Cellular Biology)

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### **BU School of Public Health**

Carol Dolan (Community Health Sciences)  
Andrew Stokes (Global Health)  
Chris Gill (Global Health)

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### **BUMC IT, Educational Media**

Jana Mulkern  
Kenith Wilson

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### **BU Center for Teaching and Learning**

Nicholas Wilson

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**The Planning Committee acknowledges with appreciation the support from the following offices that have made this meeting possible:**

Division of Continuing Education, Boston University Goldman School of Dental Medicine  
Graduate Medical Sciences, Boston University School of Medicine  
Graduate Medical Education, Boston Medical Center  
Office of the Dean, Boston University Goldman School of Dental Medicine  
Office of the Dean, Boston University School of Medicine  
Office of Medical Education, Boston University School of Medicine  
Office of Student Affairs, Boston University School of Medicine  
Office of the Dean, Boston University School of Public Health  
Office of Facilities Management and Planning  
BUMC IT, Educational Media  
Alumni Medical Library

**The Planning Committee acknowledges with appreciation the support and participation of the following educational vendors:**

Bones Clones	Lippincott/Wolters Kluwer
Echo 360	Primal Pictures
Exam Master	Turning Point
Kaltura	ZSpace
Lenovo, US	

## Schedule of Events

**Theme: *Nurturing an Open and Inclusive Environment for Learning***

<b>8:15-8:45 a.m.</b>	<b>Registration / Breakfast / Visit Vendors</b>
<b>8:50-9:00 a.m.</b>	<b>Welcome</b> Karen Antman, MD Provost, BU Medical Campus
<b>9:00-10:40 a.m.</b>	<b>Keynote Lecture: <i>Implicit Bias &amp; Microaggressions: How our Brain Takes Short Cuts</i></b> Aza Allsop, MD, PhD, and Bruce Birren, PhD
<b>10:40-10:50 a.m.</b>	<b>Vendor Introduction</b>
<b>10:50-11:00 a.m.</b>	<b>Break/Travel to Workshops</b>
<b>11:00-12:30 p.m.</b>	<b>Concurrent Workshops</b> <u>Workshop A:</u> Exam Study Resources (Room R-107) <u>Workshop B:</u> Teach Smarter, Learn Better: A Cognitive Load Primer (Room L-203) <u>Workshop C:</u> Teaching the Clinical Reasoning Process (Room L-206) <u>Workshop D:</u> “You did a great job/ Keep on keeping on”: How to Improve and Integrate Faculty Assessment and Feedback of Trainees (Room L-209)  <b>(See p.11–14 for descriptions and locations)</b>
<b>12:30-1:15 p.m.</b>	<b>Lunch / Networking / Visit Vendors</b>
<b>1:15 – 2:15 p.m.</b>	<b>Deans’ Panel: <i>Highlighting Educational Innovations on Boston University Medical Campus</i></b>  Moderated by Maura Kelley, MD, and Paige Curran, MA, Department of Medical Sciences & Education  <i>Panelists:</i>  Fadie Coleman, MA, PhD, Graduate Medical Sciences Yvette Cozier, DSc, School of Public Health Yoshiyuki Mochida, DDS, PhD, Henry M. Goldman School of Dental Medicine Ann Zumwalt, PhD, School of Medicine  <b>(See p. 15 for descriptions)</b>



**2:15-2:45 p.m.**

**Awards**

*BUSM Educator of the Year in Clinical Sciences, Affiliates*  
*BUSM Educator of the Year in Clinical Sciences, Kaiser Permanente*  
*Silicon Valley Regional Campus*  
*GMS Faculty Recognition Award*  
*BUGSDM Faculty Appreciation Award Pre-doctoral Education*  
*BUGSDM Faculty Appreciation Award Post-doctoral Education*  
*BUSPH Educational Innovation Award*

**(See p. 16 for descriptions)**

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**2:45- 3:30 p.m.**

**Oral Presentations**

**Best Faculty Abstract:**

*Student Reflections of Large Group Inter-professional Education Session*  
Angela Reffel, PA-C, MHP, Susan E. White, MD, Heather Miselis, MD, MPH,  
Priya Garg, MD

**Best Student Abstract:**

*Saving Lives: Students Enhancing Patient Health Literacy Regarding*  
*Hypertension in Pregnancy and Prenatal Aspirin*  
Alex A. Francoeur, BA/BS, Jodi F. Abbott, MD, Pooja Vyas, MD, Andrea  
Molina, MD

**Best Resident/Fellow Abstract:**

*A Novel, Trauma-Informed Curriculum for History Taking from Refugee*  
*Patients for Second-year Medical Students*  
Shabatun Islam, MD, Christina P. C. Borba, PhD, MPH, Muna Sheikh, MD,  
Kathleen Flinton, LICSW, Sondra Crosby, MD, Nicolette Oleng, MD, Linda  
Piwowarczick, MD, Gabrielle Jacquet, MD, MPH, Suzanne Sarfaty, MD

**3:30-4:30 p.m.**

**Poster session/Networking/Vendors** (available online at  
<https://www.bumc.bu.edu/jmedday/>)

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**Educational Vendors will be displaying their products in Hiebert Lounge throughout the day.**



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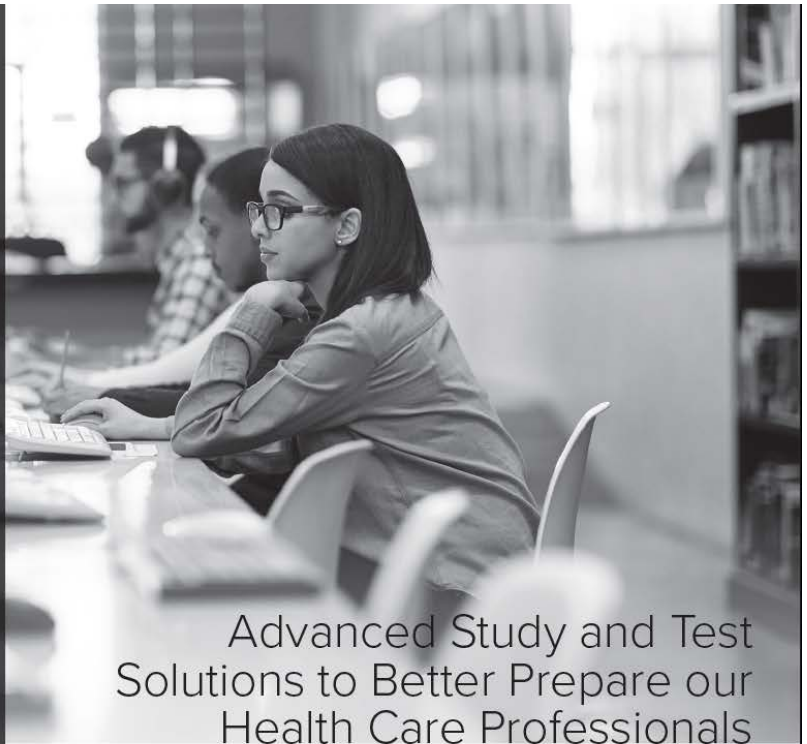
Lenovo builds for durability and reliability, ensuring that your IT dollars are always well spent. Our end-to-end solutions can help expand your impact and our comprehensive technology portfolio will empower your institution to invest and innovate with confidence. Empower a new generation of higher education explorers and their champions with thoughtfully crafted Lenovo solutions and expertise.

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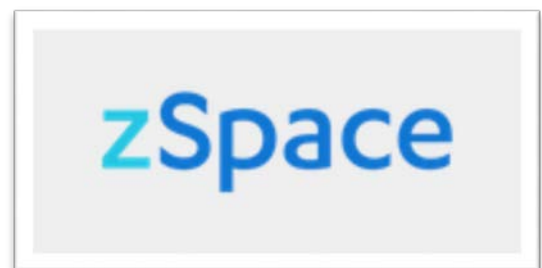
**Additional Vendors On-site**



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# CONCURRENT WORKSHOPS 11:00 a.m. - 12:30 p.m.

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## WORKSHOP A: Room R-107

### Exam Study Resources

Joseph Harzbecker, MS (LS), A'Llyn Ettien, MLIS

This session aims to familiarize students and faculty interested in exploring the use of several resources for course exams. Participants will view demonstrations of several exam resources from the student perspective. Participants will also have the opportunity to get hands-on searching in AccessMedicine, AccessSurgery, Exam Master, First Aid collection, and PAEasy. The Library's website school portals will be highlighted for additional resources information.

**Target audience:** Students, faculty who would like to become better acquainted with exam preparation e-resources, specifically dentistry, medicine, and physician assistants. Even those who are not planning to use these resources in the academic year, may be interested in seeing and working with these resources.

#### Learning objectives:

- Utilize Boston University Medical library electronic exam preparation e-resources
- Utilize Resources developed by Exam Master, McGraw-Hill
- Recognize limitations of resources

#### Session outline:

Overview (10 minutes)

Resource review

- AccessMedicine (case files, clerkship topics, flashcards, review questions)
- AccessSurgery (case files, flashcards, resident readiness)
- Exam Master (dental review for NBDE part 1, family medicine ABFM review question bank, internal medicine ABIM review question bank, PANCE/PANRE certification review question bank for PA's, pediatrics ABP review question bank, USMLE Step 1 and 2 question banks and practice exams, USMLE Step 3 board review question bank for residents)
- First aid and medical review collection
- PAEasy

Practice

- Review where these resources are located in BU PRIMO catalog, medical library website (5 minutes)
- Get a hands-on overview of the resource features (20 minutes)
- Choose a resource to practice with (15 minutes)
- When a user needs support (5 minutes)

Wrap up and Q&A (15 minutes)

## **WORKSHOP B: Room L-203**

### **Teach Smarter, Learn Better: A Cognitive Load Primer**

Alaina Geary, MD, Beverly Heinze-Lacey, MPH, BSN, RN, Luise Pernar, MD and  
Jeffrey Markuns, MD

Designing instruction that maximizes understanding and retention is a challenge faced by all educators. Learners are often overloaded with information and, as a result, little of what is taught is actually retained. Multimedia technologies (PowerPoint, e-books, online modules, educational apps, etc.) have become common in didactics, but poor design and usage often create barriers to learning. Also, the clinical environment is complex and fast paced and learners are easily overwhelmed. How can you help your learners navigate these complicated challenges and optimize their learning potential and help them retain what they have learned?

To help you with these challenges, this workshop will introduce the concept of cognitive load. Through interactive discussion and solving worked examples, you will learn strategies to minimize distractions in educational materials and encounters and optimize learning experiences starting with your instructional design. The three main types of cognitive load (intrinsic, extrinsic, and germane) will be reviewed with specific management strategies for each. Clinical and nonclinical examples will be explored through large and small group discussion. At the end of the session you will be equipped with tools to improve educational experiences and ensure improved learning experiences for your trainees.

**Target audience:** Open to all attendees

#### **Learning Objectives:**

- Describe intrinsic, extrinsic, and germane cognitive load affect a learners' ability to process and store novel information
- Describe at least two design principles used to manage cognitive load
- Apply at least two cognitive load management principles to case-based scenarios

#### **Session outline:**

Introduction and large group cognitive load exercise (5 minutes)

Principles of cognitive load theory and how to manage cognitive load (15 minutes)

Large group discussion: Multimedia management strategies (15 minutes)

Small group discussions: Applying design principles to case-based teaching encounters (40minutes)

Review of take home points and session evaluation (15 minutes)

## **WORKSHOP C: Room L-206**

### **Teaching the Clinical Reasoning Process**

Robert Lowe, M.D, and Warren Hershman, M.D.

Diagnosis is one of the key responsibilities of a physician or physician assistant, and the process of clinical reasoning has been the subject of a large body of educational research. In this workshop, the authors will present an update on the current state-of-knowledge regarding clinical reasoning using an interactive lecture format. The group will then be divided into subgroups that will practice these skills by role-playing as teachers and learners, with observation and feedback provided by workshop members and faculty.

The clinical reasoning process is a key function of physicians and physician assistants. Understanding the current models of clinical reasoning and the established methods of teaching this skill will improve the clinical education of our students, and also inform the pre-clinical faculty about the reasoning process, allowing them to devise case-based sessions and exam questions that foster good clinical reasoning.

**Target Audience:** Preclinical and Clinical Faculty who want to learn more about the process of clinical reasoning.

#### **Learning Objectives:**

- Identify the key elements of the diagnostic reasoning process.
- Describe the vocabulary and tools provided to teach diagnostic reasoning.
- Apply these teaching tools to the spectrum of learners - novice to expert
- Observe and practice the use of the following: problem representation, illness scripts, Analytical and non-analytical clinical reasoning

#### **Session Outline:**

Introduction to Clinical Reasoning Overview (10 minutes)

Role modeling the Clinical Reasoning process (10 minutes)

Tools for the Teacher: Problem Representation, Illness Scripts & Key Reasoning Patterns (10 minutes)

How & When do you use these tools? (10 minutes)

Practice Session (30 minutes)

- Practice using Teaching Tool Questions
- Encourage use of Diagnostic Reasoning terms, recognize illness scripts
- Effectively teach Diagnostic Reasoning

Summary of lessons expressed during the Practice Session (5 minutes)

Group Discussion and Q+A (15 minutes)

## **WORKSHOP D: Room L-209**

### **“You did a great job. Keep on keeping on”– How to Improve and Integrate Faculty Assessments and Feedback of Trainees**

Rachel Simmons, Craig Noronha MD and Sonia Ananthakrishnan MD

Ideally, in medical education multiple feedback exchanges between faculty and trainees provides timely, specific, and behavioral based information that aggregate to form the backbone for an overall assessment of a trainee's performance. An assessment, when implemented properly is a systematic gathering of information about what the learner knows, is able to do, and identify areas for improvement. However, in the real world we find that faculty feedback and assessment are often lacking in several areas and may even be discordant. There is a paucity of faculty development around feedback and assessment of trainees

This workshop session is intended to provide faculty skills to improve assessment and feedback of clinical and non-clinical students and trainees. Participants will identify barriers for high level assessment and feedback exchange within undergraduate and graduate medical education programs. 2 areas of focus will be on 1) improving consistency between feedback and assessments and 2) improving narrative assessments using the Completed Clinical Evaluation Report Rating (CCERR). This workshop will include interactive case based skills practice using assessment and feedback related tools, tailored to specific academic and clinical settings.

#### **Target Audience:**

The target audience for this workshop is student and trainee educators, including course and program directors/administrators who are interested in improving assessment and feedback exchange in resident education.

#### **Learning objectives**

- Define the elements of feedback and assessment
- Describe barriers to assessment and feedback in resident education
- Practice providing feedback and creating assessments, both narrative and ratings, in specific scenarios

#### **Session outline:**

Introduction and overview (10 minutes)

Small group discussion- Identify barriers in assessment and feedback (15 minutes)

Didactic- (15 minutes)

Define elements and root components of feedback; Define assessment and how it differs from feedback; Introduce feedback tool; Introduce the Completed Clinical Evaluation Report Rating (CCERR)

Small group skills practice using longitudinal cases (25 minutes)

Part #1- Utilization of feedback tool

Part #2- When given additional information about learner, complete portion of CSEF with narrative comments

Large group debrief and discussion- How to improve assessment in trainee education (15 minutes)

Wrap up with Q&A (10 minutes)



## DEAN'S PANEL:

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**Fadie T. Coleman, PhD:** Assistant Professor, Medical Sciences & Education, GMS,

Dr. Coleman is the Director of the Biomedical Laboratory & Clinical Sciences Program jointly run through BUSM and Metropolitan College. She is also the Co-director of the BU Post-baccalaureate Research Education Program (BU PREP). Dr. Coleman's goal is to engage, challenge, and inspire student learning in the biomedical sciences through innovative ideas and the application of current pedagogy in science education. Her education research focuses on interventions that concentrate on college and graduate student access, engagement, and success in the biomedical studies; with a particular interest in addressing the specific challenge of maintaining students from underrepresented and underserved communities in the STEM disciplines.

**Yvette C. Cozier, DSc:** Assistant Dean for Diversity and Inclusion, BU SPH; Center Faculty Member, Slone Epidemiology Center, BUSM

Dr. Cozier is currently an investigator on the Black Women's Health Study (BWHS) and the BWHS Sarcoidosis Study at the Slone Epidemiology Center. Her research interests include social and genetic determinants of health in African-American women -- specifically, the influence of factors such as racism, neighborhood socioeconomic status, and genetics in the development of cancer, cardiovascular risk, and pulmonary (sarcoidosis) disease. Additional research interests include oral health, and the role that the faith community, particularly the black church, plays in health promotion/disease prevention efforts associated with HIV/AIDS, hypertension, and obesity.

**Yoshiyuki (Yuki) Mochida, DDS, PhD:** Clinical Assistant Professor, Molecular and Cell Biology, GSDM

Dr. Mochida is a dentist -scientist whose career has been devoted to understanding and advocating of rare craniofacial diseases. Dr. Mochida serves as a course director/co-director in many of didactic courses concerning Oral Biology and contributes to several committees at GSDM, BUMC and University levels. Dr. Mochida actively helps the patient support group of families with rare craniofacial diseases in Massachusetts by speaking at the public hearing testimony in support of the craniofacial bills. These patients are often being denied coverage by both health insurers and dental insurers. Dr. Mochida started Patient Seminar Series at GSDM to further enhance dental educational curriculum by hosting rare disease patient speakers.

**Ann Zumwalt, PhD:** Associate Professor, Anatomy and Neurobiology, BUSM

Dr. Zumwalt runs the medical gross anatomy course for medical and graduate students as well as numerous clinical anatomy initiatives in the medical school. She is the chair of the Pre-Clerkship curriculum subcommittee of the School of Medicine and is actively involved in curriculum design in that school. She has a strong interest in curriculum and faculty development in medical education, with a particular focus on bridging the foundational and clinical sciences. A parallel interest is the development of graduate students as future biomedical educators. Within the Department of Anatomy & Neurobiology she is Course Director of the Teaching in the Biomedical Sciences course and Anatomy Journal Club. She is a member of the Board of Directors of the American Association of Anatomists and is very interested in training the medical educators of the future.

# JOHN MCCAHAN MEDICAL CAMPUS EDUCATION DAY AWARDS

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## **BUSM Educator of the Year in Clinical Sciences, Affiliates**

This award recognizes superlative clinical teaching in the third year by BUSM faculty at affiliated sites and is determined solely on input from students.

## **BUSM Educator of the Year in Clinical Sciences, Kaiser Permanente Silicon Valley Regional Campus**

This award recognizes superlative clinical teaching in the third year by BUSM faculty at the Kaiser Permanente Silicon Valley Regional Campus sites and is also determined solely on input from students.

## **GMS Faculty Recognition Award**

Graduate Medical Sciences is committed to the highest quality educational experiences for our students. The GMS Faculty Recognition Award celebrates faculty who embrace our teaching mission by seeking ways to engage students in an active learning environment and by challenging students to think critically and supporting students to take ownership of their own scholarship. This award recognizes faculty that have gone above and beyond expected contributions by developing creative initiatives to our teaching mission including, but not limited to, innovative coursework, new curriculum design, and the support of an improved teaching and learning environment.

## **BUGSDM Faculty Appreciation Award Pre-doctoral Education**

The Award for Innovation in Education goes to the faculty member who best exemplifies the characteristics that makes our pre-doctoral students excited about learning. This faculty member, through the use of technology or alternative modalities of teaching and assessment, has been able to inspire and motivate his/her students to achieve competency in their subject matter while enhancing student learning.

## **BUGSDM Faculty Appreciation Award Post-doctoral Education**

The Award for Innovation in Education goes to the faculty member who best exemplifies the characteristics that makes our post-doctoral students excited about learning. This faculty member, through the use of technology or alternative modalities of teaching and assessment, has been able to inspire and motivate his/her students to achieve competency in their subject matter while enhancing student learning.

## **BUSPH Educational Innovation Award**

BUSPH values its excellent reputation for innovative teaching and is proud to acknowledge excellence in teaching and learning through the BUSPH Educational Innovation Award. This award recognizes creative contributions to the development of tools for the innovative presentation of coursework, new curriculum design, and the creation of an improved teaching and learning environment. The Educational Innovation Award is designed to reward faculty who are prepared to challenge the traditional ways of doing things, to try out new approaches and to seek improvements in the way teaching is delivered and learning is achieved. Its aim is to enhance the status of teaching, encourage innovation and disseminate good practice.

# ABSTRACT THEMES FOR POSTER PRESENTATIONS

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\* Abstracts are ordered alphabetically by the last name of the primary author.

## **Education Technology**

These submissions are meant to demonstrate creative use of interactive technology to augment learning. Appropriate types of submissions include course or clerkship websites, electronic clinical case simulations, online didactics, computer – based faculty development resources and electronic evaluation instruments. Submitted projects should be non-commercial although industry funding is permitted if the content and control of the project resides solely with the faculty authors.

## **Abstracts 1**

## **Education Innovation and Research**

These submissions showcase scholarship or ongoing research in education at BUMC. Projects can be presented prior to the completion of full evaluation. Examples of educational innovations include: development, implementation, or evaluation of educational tools, course curricula, simulations or innovative educational collaborations. For research, both quantitative and qualitative research may be submitted as well as research in progress.

## **Abstracts 2-22**

## **RESTORATIVE MATERIAL SELECTION GUIDE FOR PRE-DOCTORAL STUDENTS UTILIZING CAD/CAM**

Sara Satin DMD, Afsheen Lakhani DMD, CAGS, Alexander Bendayan DMD, CAGS, FICD.  
Department of General Dentistry, Boston University Henry M. Goldman School of Dental  
Medicine, Boston, MA

In recent years, there has been an increased patient demand for restorations that are both more esthetically pleasing and can be delivered faster. CAD/CAM technology allows dentists to design, fabricate, and deliver restorations in single appointments. Dental students are constantly faced with the challenge of selecting appropriate materials while applying concepts of ideal preparation design. Given the variety of dental materials for CAD/CAM currently available, it often becomes confusing for pre-doctoral students. Predictable outcomes depend upon nuances of the individual case, technical execution, and appropriate material selection, while keeping cementation/bonding techniques, location in the mouth, and esthetic requirements in mind. This teaching project included the participation of a pre-doctoral student from the DMD4 program at BUGSDM, where Digital Dentistry has been incorporated into the preclinical and clinical curriculum. During the transition between 3rd and 4th year, a mentor helped the student understand the selection methods for various dental materials during the care of different clinical cases for full coverage restorations. The student analyzed the selection between posterior and anterior zone based on fixed prosthodontic guidelines and protocols including but not limited to occlusion, esthetics and function.

### **Objectives:**

At the end of this poster presentation the participants will be able to:

1. Determine what type of dental ceramic is recommended in the different areas of the mouth based on function and esthetics utilizing the available tools on CAD/CAM programs.
2. Evaluate the different types of luting agents and their techniques for proper cementation protocols
3. Understand the importance of clearance and reduction for proper biomaterial selection.

### **Conclusions:**

1. This guideline provides a roadmap for pre-doctoral dental students throughout their clinical years to select a dental material based on composition instead of a brand name, as those will likely change with time.
2. The selection guide enables dental students to better select a material, whether done chairside versus conventionally in a lab based on location, function and esthetic requirements.
3. Dental Schools can utilize this simple classification system to develop their own selection criteria based on materials available, for both CAD/CAM and conventionally fabricated restorations. The classification system allows for incorporation of new dental materials as they become available.

## **DENTAL STUDENTS' PERCEPTION OF THE MOST EFFECTIVE TEACHING AND LEARNING STRATEGIES IN PRECLINICAL TRAINING**

Gelareh Aryfar, DMD 2019 Candidate, GSDM; Jayapriyaa Shanmugham, BDS, MPH, DrPH, Department of Pediatric Dentistry, GSDM; Breno Reboucas, DDS, CAGS, DSc. Departments of General Dentistry and Pediatric Dentistry, GSDM

**Background:** Preclinical dental courses are an essential step toward the achievement of competence in several dental procedures. Preclinical courses give students an opportunity to learn and practice dental techniques and develop cognitive and psychomotor skills before they start treating patients in the clinic. Several learning and teaching strategies are being used by students and faculty members during preclinical courses with the goal to motivate and improve students' understanding of different procedures and techniques. This study assesses the student's perception of the most effective teaching and learning strategies used during their preclinical courses at Boston University School of Dental Medicine.

**Methods:** All students attending course PD530 Didactic Pediatric Dentistry were asked to answer a 5-question questionnaire regarding their opinion of the most and least effective teaching and learning strategies used during preclinical courses. Questionnaire was given during one of the course's lectures on a paper format. Student participation was optional and anonymous. Questionnaire also asked students which educational resources were used in addition to the material suggested by the course faculty. All 200 students who were enrolled in the course were eligible to participate in this study. Incomplete questionnaires and questionnaires that were not completed following questions instructions were discarded. IRB Number: H-38512.

**Results:** The sample of this study was 106 students consisting of 56 advanced standing and 50 DMD 3 students. Findings indicate that students find live demonstration and feedback given by faculty as the most helpful tool in preclinic. There is a significant difference between AS and DMD students in the most helpful methods. Lectures given at SLC and Prepcheck are the least helpful teaching tools for them in the preclinic. There was no significant difference between AS and DMD students regarding what method they find least helpful. Students use Youtube videos and power point presentation from lectures as additional helpful teaching resources for them. There is no significant difference between AS and DMD students on additional resources they use. Students also recommend no lecture given at preclinic and more time to practice per session as a way to improve their learning in the preclinical settings. In this regard there is a really significant difference between DMD and AS students.

**Conclusions:** Based on these results, it appears that concentrating on spending most of the preclinic time on live demonstration and interaction between students and faculty can be beneficial to students. regarding the difference between AS and DMD students, it is speculated that since AS students already have the knowledge they prefer to spend more time on practice rather than listening to lectures. Also not focusing on previously recorded videos and not giving lectures at preclinic is of importance to students. Dental students appear to need more resources accessible to them for efficient learning such as YouTube videos or more detailed power point presentations regarding the technical aspect of the dental procedure.

## KIDNEY STONES IN BLACK WOMEN IN THE UNITED STATES: DATA FROM THE BLACK WOMEN'S HEALTH STUDY USING A WEB-BASED QUESTIONNAIRE

Maria D'Amico, Shaun Wason, Lynn Rosenberg, Yvette Cozier

**Background:** Nephrolithiasis is a common urologic condition and a significant source of patient morbidity and healthcare expenditure. There has been an increase in the prevalence of kidney stones in the United States in recent years, especially among black and female patients. There are few epidemiologic studies of kidney stones focusing on black women. We present data on the prevalence, clinical characteristics, and diagnostic work up of women with self-reported kidney stones among participants in the Black Women's Health Study (BWHS).

**Methods:** The BWHS, initiated in 1995, is a prospective, epidemiologic study of 59,000 US black women (age 21-69) followed via biennial postal and web questionnaires. The 2005 questionnaire asked whether participants had ever been diagnosed with kidney stones as well as data on patient characteristics (age, education, geographic region), health behavior, medical factors (body mass index, type-2 diabetes, hypertension, high cholesterol, gallstones), and use of medical care. In 2017, a subset of BWHS participants (n=2,570) completed a web-based questionnaire focusing on urinary tract health (e.g., urinary incontinence, UTI), including questions regarding undergoing metabolic work-up, imaging, and surgical procedures related to the diagnosis of kidney stones. Chi-square tests were used to compare characteristics between participants with and without a history of nephrolithiasis.

**Results:** Among the 43,179 participants who completed the 2005 survey, 836 (2%) reported ever being diagnosed with kidney stones. Women with and without a history of kidney stones were similar in terms of geographic location, education level, and health insurance coverage. Respondents with a history of kidney stones were more likely to be older ( $P<0.0001$ ), to have smoked ( $P=0.04$ ), to be obese ( $P=0.01$ ), and to have been diagnosed with a comorbid condition (type-2 diabetes ( $P<0.0001$ ), hypertension ( $P=0.01$ ), hyperlipidemia ( $P<0.0001$ ), gallstones ( $P<0.0001$ )). The 2,570 sub-study participants in 2017 were slightly heavier, more educated, and more likely to reside in the Northeast than BWHS participants overall. Eight percent reported a history of kidney stones of which 40% experienced  $\geq 2$  stones in their lifetime, 32% completed a metabolic work up, 70% had undergone a CT scan, and 29% had undergone a surgical procedure.

**Conclusions:** BWHS participants who reported a history of kidney stones were more likely to have other medical comorbidities, including key components of metabolic syndrome and gallstones. These data are consistent with hypotheses relating lifestyle-associated risk factors with nephrolithiasis and also confirm reports of lower rates of metabolic evaluation among African American patients despite respondents' multiple risk factors for kidney stones. Further study is needed to establish the temporal sequence between nephrolithiasis and common comorbid conditions, including gallstones and diabetes, as well as to identify the barriers and facilitators of diagnostic work up of kidney stones in black women. Furthermore, through this analysis of the BWHS, we aim to demonstrate how a web-based questionnaire can facilitate inter-departmental collaboration and education surrounding common clinical conditions in an understudied population.



## WEB-BASED FRAMEWORK FOR ASSISTING DENTAL EDUCATORS IN TEACHING EVIDENCE-BASED DENTISTRY

Theresa A. Davies, A'Llyn Ettien, David Flynn

**Purpose:** Evidence-Based Dentistry, widely taught across dental curricula, is a systematic approach to clinical decision-making. EBD integrates clinical expertise and the best available research with an emphasis on patient needs and preferences. Due to the rapid growth of research and technology, dental students and dentists must be life-long learners. As a result, trainees must learn information mastery along with didactics and clinical skills in order to be successful in the dental profession. Here we describe an educational tool for assisting faculty in teaching EBD, modeled after the validated Finding Information Framework developed at Boston University School of Medicine for teaching Evidence-Based Medicine (EBM).

**Methods:** The Finding Information Framework (FIF), developed to promote the integration of EBM into medical decision-making at Boston University School of Medicine, has been adapted here for graduate students in the Oral Health Sciences. The newly developed web-based tool utilizes the same general decision tree, guiding students in thinking about their questions, categorizing them and then choosing databases and journals that will best help in answering their clinical questions. Sources include journals such as JADA and the Journal of Evidence-Based Dental Practice; databases such as the Cochran Oral Health Group and expert clinical guidelines resources such as the CDC Division of Oral Health.

**Findings and Conclusions:** With the need to apply EBD principles in pre-clinical coursework graduate pre-dental students at Boston University enrolled in didactic courses used the FIF-EBD web-based tool and were surveyed. Utilization of the framework in categorizing a PICO question first as background or foreground and subsequently as basic or clinical teaches students to make more thoughtful decisions as they begin to develop the information mastery skills necessary for future success in dental school. Preliminary survey result were positive with users stating the FIF (1) promoted understanding of the different categories of information resources (4.47), (2) helped to select the best information resource to answer my clinical or basic science question (4.27), (3) helped to find information that was relevant to answering the clinical or basic science question (4.13), (4) improved my information seeking efficiency (4.13) and (5) was easy to use (4.6). Evidence-Based Dentistry is a systematic approach to clinical decision-making. Due to the growth of research and technology, dental students must be life-long learners developing information mastery along with didactics and clinical skills. Here we describe an educational tool for assisting faculty in teaching Evidence-Based Dentistry, modeled after the validated Finding Information Framework developed at Boston University for teaching Evidence-Based Medicine. Utilization of the framework in categorizing a PICO question first as background/foreground and subsequently as basic/clinical teaches students to make thoughtful decisions using Evidence-Based Dentistry tools as they begin to develop the skills necessary for future success in dental school.

## STARS PROGRAM: OUTCOMES OF A NEW PIPELINE PROGRAM TO DIVERSIFY THE BIOMEDICAL WORKFORCE

Isabel Dominguez, Ph.D., Department of Medicine, BUSM  
Maria I. Ramirez, Ph.D., Department of Medicine, BUSM, and Thomas Jefferson University  
William W Cruikshank, Ph.D., Department of Medicine, BUSM  
Linda E. Hyman, Ph.D., Graduate Medical Sciences, BUSM

**Purpose:** Despite growing numbers of undergraduate students from underrepresented groups in biomedicine, only a small percentage pursue graduate studies. Therefore, in 2014, Graduate Medical Sciences (GMS) established the Summer Training as Research Scholars (STaRS) program, supported since then by the NHLBI. The goal of the STaRS program is to increase the number of students that pursue PhD, MD/PhD and MD research career paths. STaRS is unique in that it hosts 10 undergraduate students together with 5 BU first year medical students each year. Selected Scholars from all the USA conduct 10 weeks of faculty-mentored research, participate in multiple career development activities, including preparation for entrance in a graduate-level program. We present outcome data from the first NHLBI grant period (2014-2017).

**Methods:** Scholars completed end-of-program surveys on satisfaction, and perceptions about the program and their future education plans. Follow-up yearly surveys addressed impact of the program and current career status. Open-ended questions were analyzed using qualitative coding in which responses were coded for emergent themes.

**Results:** The number of applicants doubled since 2014, reaching >600 in 2017. Scholars reported a positive experience with their mentors, with the career development activities, and the program overall. Scholars reported increased scientific skills and comfort within the laboratory environment. Undergraduate scholars reported that STaRS positively influenced their decision to pursue an advanced degree; a large number of them have been accepted or are matriculated into graduate programs. Half of the medical students are currently doing or plan to do research.

**Discussion:** The STaRS program is an attractive and productive program for undergraduate and medical students from underrepresented groups in biomedicine. By enhancing their scientific skills and their motivation for entrance in a graduate-level program, STaRS contributes to increase the number of trainees that will become researchers or physician scientists ultimately diversifying the biomedical workforce.

## IMPROVING THE ACCESSIBILITY OF MEDICAL NEUROANATOMY THROUGH GAMIFICATION

George Farah and Jarrett Rushmore; Department of Anatomy and Neurobiology

Neuroanatomy is of considerable importance in medicine because it provides the foundation of lesion-symptom mapping. However, this topic evokes considerable anxiety among preclinical medical students, in part due to the perceived difficulty of the content. This anxiety prevents students from engaging with and learning the material, which limits their clinical reasoning skills. Two major hurdles to neuroanatomy learning are 1) the neuroanatomic vocabulary which must be learned, and 2) the absence of heuristics needed to organize the information into digestible pieces. To address these problems, we created a website to lay out bottom-up approaches in understanding neuroanatomy and linked each section to quizzes built on the popular Sporcle quiz website. A total of 98 quizzes were created based on the class brain atlas. Two kinds of quizzes were created. In level 1, students were required to identify structures represented by overlays on the brain section. In level 2, an unlabeled image was presented and the students were required to recall the neuroanatomical structures in the absence of overlays. The quizzes were designed to be short, compatible with mobile devices, and were not linked to an IP address or login credentials. The quizzes therefore represented an anonymous no-risk assessment. The resource was made available to students of the BUSM medical neuroscience over two years (2016-2107). Over this time period, quizzes were played a total of 32,411 times, with people accessing level 1 quizzes 19,395 times (range 216-693 plays/quiz) and level 2 quizzes a total of 13,016 times (range 83-542 plays/quiz). This resulted in an average of 82.5 plays per student. Students reported high levels of satisfaction with the resource. These results indicated that the students frequently engaged with this resource. We conclude that the gamification of neuroanatomy may be a to reduce anxiety and increase learning and accessibility.

## A FOCUSED INTERACTIVE BOOTCAMP FOR FOURTH YEAR MEDICAL STUDENTS ENTERING EMERGENCY MEDICINE RESIDENCY

Jana Florian, BS, BUSM; Adam McFarland, MD, Department of Emergency Medicine, BUSM; Stephanie Stapleton, MD, Department of Emergency Medicine, BUSM

**Background:** The transition from fourth year of medical school to internship comes with a steep learning curve. Recent literature has supported the use of educational bootcamps to provide foundational specialty-specific content prior to the start of residency and address the variability in skills and readiness of incoming residents. BUSM currently provides bootcamps in surgery, internal medicine, and obstetrics and gynecology. Future EM trainees may benefit from a similar bootcamp.

**Methods:** Fourth year medical students applying into EM residency participated in an ungraded, 2-day course in preparation for intern year. The bootcamp used interactive presentations, procedural workshops, and high-fidelity simulation scenarios. Students' self-confidence ratings in 45 skills were collected using pre and post evaluations on a 100-point scale.

**Results:** A total of 18 students participated, 10 students attended both days. Students noted most significant improvement in confidence to act as a team leader in a resuscitation (44 to 62,  $p < 0.04$ ) prescribe narcotic pain medications (50 to 75,  $p < 0.00$ ), place an upper extremity splint (16 to 52,  $p < 0.00$ ), assemble and insert a central line (37 to 68,  $p < 0.01$ ), select appropriate equipment (52 to 70,  $p < 0.00$ ) and medications (47 to 72,  $p < 0.00$ ) prior to intubation, and choose appropriate oxygen delivery devices in the setting of hypoxia (54 to 75,  $p < 0.00$ ).

Students agreed the bootcamp was good preparation for intern year (mean 5-point Likert scale; 4.9), fun (4.7), increased their clinical self-confidence (4.1), and should be part of the required curricula for graduating medical students (4.4).

**Conclusion:** A 2-day EM bootcamp was well-liked by students and resulted in improved self-confidence in procedural skills, medical knowledge, communication, and teamwork.

## ARE WE OPTIMIZING PEDIATRIC EMERGENCY MEDICINE EDUCATION FOR EMERGENCY MEDICINE TRAINEES?

Jana Florian, BS, BUSM; Kyle Schoppel, MD, Department of Pediatrics, Division of Pediatric Emergency Medicine, BUSM; Barbara Walsh, MD, Department of Pediatrics, Division of Pediatric Emergency Medicine, BUSM

**Background:** There is considerable variability in the current pediatric emergency medicine (PEM) education provided to emergency medicine (EM) resident physicians. Research suggests that exposure to critically ill pediatric patients is especially minimal for EM residents, in both didactic curricula and patient encounters. To address this issue, benchmark clinical performance data is required to describe the current state of PEM education and to understand the readiness of EM residents to lead medical teams caring for critically ill pediatric patients.

**Objective:** We aim to report clinical performance data for a cohort of senior EM resident physicians during 3 simulated pediatric resuscitation cases, compare these data to prior published performance of attending physicians, and assess resident self-efficacy related to pediatric critical resuscitation.

**Methods:** All PGY-4 EM resident physicians at Boston Medical Center were included in the study. Each resident participated in one 3-hour session consisting of 3 simulated pediatric resuscitation cases and a final structured debrief with a PEM-trained facilitator. The cases included pediatric sepsis, hypoglycemic seizure, and cardiac arrest. Sessions were videotaped and scored by facilitators using a previously validated tool.<sup>1</sup> Each case was evaluated using a checklist of observable actions necessary for pediatric assessment and stabilization, scored dichotomously (i.e. completed/did not complete), and reported as a percentage of actions completed. Results are reported as a mean individualized domain score (IDS) for each case. A total performance score (TPS) was generated as a mean of the 3 IDS.

**Results:** To date, 6 residents have participated. On average for this cohort, residents completed 74% of the necessary management steps and actions required in the simulated pediatric resuscitations (TPS 0.74; 95% CI 0.64-0.84).<sup>\*</sup> The mean IDS was slightly higher in the case of hypoglycemic seizure (0.78; 95% CI 0.61-0.95), compared to sepsis (0.75; 95% CI 0.58-0.92) and cardiac arrest (0.69; 95% CI 0.62-0.75).

<sup>\*</sup>Survey data and comparison data will be available once the full cohort (n=10) has completed the simulation sessions on 5/16/19.

*Author's notes:* This study is currently in progress. The above data is current as of 4/14/19. We will have a complete data set from all participating BMC EM residents (n=10) by 5/16/19, which we look forward to updating and sharing in the poster session.

**\*\*Best Student Abstract\*\*****SAVING LIVES: STUDENTS ENHANCING PATIENT HEALTH LITERACY REGARDING HYPERTENSION IN PREGNANCY AND PRENATAL ASPIRIN**

Alex A. Francoeur, BA/BS, Medical Student, BUSM; Jodi F. Abbott, MD, Department of Obstetrics and Gynecology, BMC; Pooja Vyas, MD, Department of Obstetrics and Gynecology, UCSF Fresno; Andrea Molina, MD, Department of Obstetrics and Gynecology, Cedars Sinai

**Purpose:** To increase medical student's knowledge, behavior and belief systems regarding the complications of hypertension (HTN) in pregnancy and the benefits of prenatal aspirin (PNA). To reduce health inequities in obstetric outcomes by increasing patient understanding regarding the same topics.

**Background:** Rising maternal morbidity and mortality in the United States disproportionately affects women of color. PNA has been recommended by the American College of Obstetricians and Gynecologists for at-risk women. At Boston Medical Center (BMC), 30% of prenatal patients suffer from complications of preeclampsia, several times higher than the national rate. Only 15% of patients at BMC have heard of PNA, demonstrating high prevalence and low patient literacy regarding the topic. 3<sup>rd</sup> year medical students commonly report feeling unsure how to contribute to the team on their Ob/Gyn clerkship.

**Methods:** Third year students in their clerkship for Ob/Gyn educated at least 2 patients on 3 points: knowledge of HTN in pregnancy, warning signs of preeclampsia, and efficacy of PNA in pregnancy. Students were evaluated using Kirkpatrick domains: satisfaction, knowledge, confidence, and belief systems by surveys conducted at the beginning and end of the 6-week clerkship. Patient education was evaluated by pre and post intervention surveys.

**Results:** As a whole, patients increased their knowledge of HTN 217%, warning signs of preeclampsia 440%, and understanding that PNA is safe and effective by 469%. Student's confidence and awareness increased by 40% and 32%, respectively. Students reported a satisfaction level of 6.9 out of 10, and rated the amount of additional work at 3.4 out of 10.

**Discussion:** By creating a structured framework for counseling, students were able to contribute positively to patient care by educating patients, while improving their clinical skills and participating on a team. This model could be expanded to include students as health literacy coaches in other areas of medicine.



## CONSTRUCT VALIDATION OF LOW-COST, LOW-FIDELITY TASK TRAINERS FOR EXCISIONAL HEMORRHOIDECTOMY

Alaina D Geary MD, Luise IM Pernar, MD, Jason F Hall, MD MPH

**Introduction:** Excisional hemorrhoidectomy is a challenging procedure due to the constraints posed by operating in a narrow tube. Junior residents often cover these cases as the senior and chief residents are off doing 'big' cases. However, juniors often have not mastered basic skills like sewing and knot tying even in accessible locations. The availability of low-cost simulators to practice are limited. Accordingly, we sought to establish construct validity for a prototypical set of hemorrhoidectomy task trainers.

**Methods:** Subjects included attending surgeons, surgical residents, and medical students. Three low-cost trainers were developed to practice skills required for hemorrhoidectomy: dissecting (peel an orange), knot-tying (seven 2-handed knots on weight), and suturing (closure of a defect) in a confined space (8oz Mason jar). Participants were given written and verbal instructions. Performance was timed and errors counted. Participants were asked to fill out a Likert-based evaluation regarding the skills. The primary outcome measure was time to complete each task in seconds. Secondary outcome measures assessed number of errors associated with each task, subjective achievability of tasks, and utility of tasks for improving surgical skills.

**Results:** Twenty-six subjects participated: 12 experts (7 attending surgeons, 5 PGY-2 - PGY-5 surgical residents) and 14 novices (3rd&4th year medical students). Experts sutured (225s vs 289s, p 0.03) and knot-tied (57s vs 131s, p 0.0001) faster than novices. Experts were able to tie seven knots in fewer attempts than novices (p 0.003). There was no significant difference in speed of orange dissection between groups. There were no significant differences in the number or frequency of other errors. All participants felt the tasks were achievable (4.95, 0.2) and would be useful in improving skills (4.95, 0.2).

**Conclusions:** This study demonstrated construct validity for the knot-tying and suturing tasks. The orange dissection task, while perhaps useful for practice, did not distinguish between experts and novices.

## EVALUATION OF A PRECEPTORSHIP MODEL ON THE THIRD YEAR GENERAL SURGERY CLERKSHIP

Alaina D Geary, MD, Luise IM Pernar, MD, Cullen O Carter, MD  
*Department of Surgery, Boston University Medical Center*

**Background:** Interest in general surgery from US medical students seems to be waning. Successful pre-clerkship preceptorship models have been shown to increase student interest in pursuing surgical careers and improve the quality of interaction between students and the surgical team. The effects of integrating a preceptorship model into the surgical 3<sup>rd</sup> year clerkship are less well known.

**Methods:** A preceptorship model was introduced at two of seven core general surgery clerkship sites between 05/2017 and 05/2018. In contrast to the standard structure, where students are assigned to cases and clinics as needed, preceptorship students are assigned to attendings and follow the attending's schedules for the rotation.

Student performance data including final grades, clinical evaluations, and end-of-rotation shelf examination scores, were collected from 05/2016 to 11/2018. End-of-rotation formative and summative comments were also collected. Preceptorship performance was compared to the standard structure overall and in quartiles. Comments were assessed for length. Analysis was performed in *Excel*.

**Results:** 276 students were included; 41 rotated on a clerkship with a preceptorship. Overall, there was no difference in student performance across the two clerkship structures. Below average preceptorship students had higher clinical grades than standard structure students (45 vs. 44  $p < 0.04$ ). Above and below average preceptorship students had higher shelf exam scores than standard clerkship students (80 vs. 79  $p < 0.02$ , 76 vs. 73  $p < 0.001$ ). Formative and summative evaluations for preceptorship students were noted to be longer (46 words vs. 22 words  $p < 0.001$ , 137 vs. 71  $p < 0.001$ ).

**Conclusions:** This study supports that average performing students benefit from direct attending surgeon attention. Additionally, preceptorship students received longer, more detailed, written evaluations. This model may be useful in captivating students that may not have otherwise been engaged.

## PRELIMINARY EVALUATION OF A RESIDENT-AS-TEACHER PROGRAM FOR GENERAL SURGERY RESIDENTS

Alaina D Geary, MD, Donald T Hess, MD, Cullen O Carter, MD, Luise IM Pernar, MD  
*Boston Medical Center Dept of Surgery*

**Introduction.** Resident-as-teacher programs (RATPs), formal curricula preparing residents for teaching roles, are prevalent in non-surgical specialties. Despite governing bodies' mandates that residents be prepared for and show teaching competency, few RATPs tailored to surgery have been published. We developed, integrated, and assessed a surgical RATP in the BUMC program.

**Methods.** The curriculum was divided into five sessions, delivered during mandatory didactic time, spaced over the academic year. Sessions provided a theoretical foundation, practical teaching tips in and outside the operating room, guidance regarding feedback and assessment, and opportunities for goal-setting and reflection. Residents completed evaluations after each session. Likert-scale based self-assessment surveys were distributed before and after RATP completion. Responses were coded numerically, and means were compared using Welch's t-test.

**Results.** On average, 17.6 (3.8) residents attended each session. Sessions were highly rated (mean 4.7, sd 0.48). Residents believed the information presented was useful (4.8, 0.41) and would lead to changes in practice habits (4.6, 0.58). After implementation, residents reported increased comfort in teaching medical students (pre 3.9, post 4.3,  $p < 0.05$ ). Residents were more likely to report having a plan to improve their teaching skills (3.2, 4.4,  $p < 0.01$ ) and more likely to believe that they could help others improve their skills (3.2, 4.2,  $p < 0.01$ ).

**Discussion.** A RATP was developed and successfully incorporated into the didactic curriculum. The program was valued by residents. The RATP led to increased subjective comfort in teaching. Additionally, residents indicated they improved their own teaching skills and that they could help others do the same. This program, in conjunction with other programmatic changes, relayed to residents that their teaching was valued and supported by the department. As teaching is a significant responsibility in residency and formal teaching instruction is mandated, success of this program is relevant to other surgical residency programs considering incorporating a formal RATP.

## INNOVATIVE INTERDISCIPLINARY EDUCATIONAL INTERVENTIONS IN INTERVENTIONAL RADIOLOGY

Mikhail C.S.S. Higgins MD MPH; Kitt Shaffer MD PhD

The field of interventional radiology (IR) represents the newest specialty within health care. It provides a broad range of common and highly specialized minimally invasive care options to patients across multiple domains, including trauma, vascular disease, and oncology. Despite having services that are highly sought after clinically, many referring providers, medical and physician assistant students tend to be unfamiliar with the extent of what IR provides. Interprofessional team members as well as students need to be fully familiar with the extent of the IR practice, and as such when to solicit the services an interventional radiologist in order to benefit their patient's care. Both underexposure to IR as a field and lack of mentorship have been cited as possible reasons contributing to the lack of diversity in IR. In spite of the lack of diversity, IR has become the most competitive specialty to match into amongst U.S. medical school graduates. Creating an interdisciplinary multilevel educational plan is deemed a reliable means to address this lack of diversity and as a means of bolstering recruitment of medical students and physician assistant students into this competitive field. Lack of early exposure to IR as well as limited opportunities for mentorship, shadowing and participation in IR-centric research create challenges for medical students and physician assistant students to enter this immensely competitive field. There is a need to have a multilevel educational plan to provide the early didactic and practical introduction to the field, integrated throughout the medical and physician assistant student's curriculum.

### **Program Objectives:**

- a) Promote exposure to the field of IR early in the medical school and physician assistant curriculum
- b) Provide interactive, engaging "IR Imaging Bootcamps" for clinician education
- c) Increase opportunities for medical students to enhance their competitiveness for entry into the IR specialty match through shadowing, research, and mentee experiences
- d) Provide longitudinal opportunities for mentorship for all medical and physician assistant students exposed to IR

### **Description of the Project:**

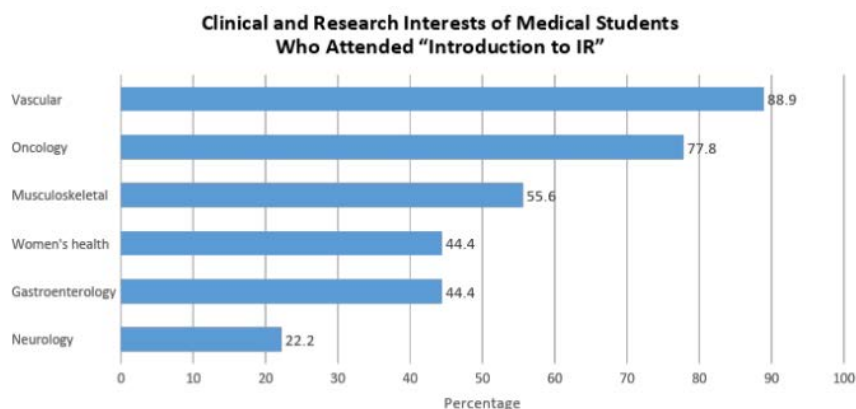
The authors have created a staged multilevel educational plan which is being expanded to help promote and deepen the exposure to the field of IR in both the medical school and physician assistant programs. These include:

- Clinically oriented lecture in the medical school (eg. Clinically-Oriented Thoracic Vascular Anatomy- year 1);
- Clinically oriented lecture physician assistant program (eg. Clinically-Oriented Extremity Anatomy- year 1; Clinically-Oriented Physician Assistant IR Imaging Bootcamp, pre-clinical, year 1).
- IR medical and physician assistant student interest group (IRIG) has been created, which is poised to offer four annual events for students, namely:
  - Introduction to IR
  - IR 101: Percutaneous Biopsy Hands-on workshop
  - IR 101: Tools of the Trade Hands-on workshop
  - IR post-residency and fellowship Match Panel discussion.

Through the IRIG, opportunities have been established to pair medical and physician assistant students with vascular and nonvascular interventional as well as neurointerventional attendings to engage interests in shadowing, research and mentorship experiences. Participation, perceptions of IR as a field, and retention of knowledge presented in formal lectures are being tracked.

### **Preliminary Findings:**

There is considerable interest amongst both medical students and physician assistant students exposed to IR through formal lectures. The IRIG has generated great interest amongst students. Approximately 40 students attended the first event of the newly launched interest group, "Introduction to IR." Of those 40 students, 9 students (22.5%) completed the electronic questionnaire assessing interest in shadowing, research and/or mentorship experiences (Figure 1).



For five medical students and one physician assistant student, shadowing opportunities emerged from the first lecture given to both student groups. Analysis of the pre-test issued to 26 students for the IR Imaging Bootcamp revealed a mean score of 59.2% (13.2 SD), and a median score of 62% (range, 30-80%).

### **Key lessons learned and next steps:**

There is a high level of interest in IR amongst medical and physician assistant students who want more clinically-oriented lectures, practical experiences and mentorship early in their training. Additional interactive educational opportunities need to be added to our staged multilevel IR educational interventions with an enhanced evaluation plan that includes more feedback from faculty and students.

**\*\*Best Resident/Fellow Abstract\*\*****A NOVEL, TRAUMA-INFORMED CURRICULUM FOR HISTORY TAKING FROM REFUGEE PATIENTS FOR SECOND-YEAR MEDICAL STUDENTS**

Shabatun Islam, MD, Christina P.C.Borba, PhD, MPH, Muna Sheikh, MD, Kathleen Flinton, LICSW, Sondra Crosby, MD, Nicolette Oleng, MD, Linda Piwowarczick, MD, Gabrielle Jacquet, MD, MPH & Suzanne Sarfaty, MD

There were 25.4 million refugees and 3.1 million asylum seekers around the world in 2017, with many seeking healthcare at Boston Medical Center. They represent a unique patient population as their health and wellbeing are affected by multiple losses and traumatic events. Healthcare providers need to be prepared to recognize and serve the complex health, psychosocial and cultural needs of these patients. Boston University School of Medicine received a grant through the Josiah Macy Jr. Foundation to train future physicians to meet the complex needs of refugee patients. All second year medical students at BUSM participated in a curriculum designed to introduce them to refugee health and to take a medical history from this vulnerable patient population. Students first watched a live play demonstrating refugee history taking and then were able to practice their skills in smaller group breakout sessions with feedback from a facilitator. A total of 149 out of 180 students completed the post survey (response rate 82.7%). 84.6% of students thought that the training was relevant to their future careers, with 79.2% believing that the training would help them take care of future patients. 75.2% of students thought the training was useful in teaching them about refugee health and 77.8% thought it taught them how to take trauma histories. In the qualitative analysis, the students showed a preference for the small group breakout sessions as it allowed them to practice their skills. Overall, 77.1% of students found the training to have enhanced their skills in taking medical histories from refugee patients. Therefore, this curriculum equips second year medical students with an introduction to refugee health and history taking and prepares them as they enter the clinical portion of medical school where they will be taking care of this vulnerable population.



## USING A MULTIDISCIPLINARY, SELF-DIRECTED WEBINAR FOR CONTINUING MEDICAL EDUCATION: IMPROVEMENT ON A TRADITIONAL TEACHING METHOD?

Sylvia Lobo, BA<sup>1</sup> and Stephanie Bissonnette, DO, MPH<sup>2</sup>

<sup>1</sup> Boston University School of Medicine; <sup>2</sup>Boston University Department of Neurology

**Background:** Interactive webinars have begun to take the place of traditional continuing medical education. Multidisciplinary education may especially benefit from this format. We, therefore, developed a multidisciplinary webinar to educate primary care providers on early symptoms and treatment of Parkinson's disease (PD). This is especially important because prior data has shown that PD patients often have a delay in diagnosis. Since PD is primarily seen in outpatient practice, improving the knowledge of primary care providers will ultimately lead to early diagnosis and treatment of Parkinson's disease.

**Methods:** A one hour, CME/CNE-certified webinar was developed featuring a geriatrician, a Parkinson's disease nurse specialist, and a movement disorders neurologist. The webinar is nationally available through myCME.com. Participants completed a pre-assessment and a post-assessment to obtain CME/CNE credit. A 3-month follow up survey will be sent to participants to assess information retention and changes in clinical practice.

**Results:** Thus far, 716 participants have completed the web activity. Preliminary data on change in knowledge is not currently available. However, time spent on the webinar and attempts at post-assessment prior to passing are as follows: 353 respondents spent less than 10 minutes on the activity with 64% requiring multiple attempts; 174 respondents spent 10 to 30 minutes with 31% requiring multiple attempts; and 189 respondents spent greater than 30 minutes with 15% requiring multiple attempts.

**Conclusion:** We hypothesized that a CME/CNE-credited self-directed webinar would be an efficient, engaging way of increasing provider knowledge of early PD symptoms and treatment. We believe that those providers who completed the course fully will ultimately have better long-term educational outcomes. While we are still waiting for the first set of three month follow up surveys to assess this, preliminary results cause us to question whether online CME/CNE webinars are a valuable way to enhance the learning of practicing clinicians.

## **PROMOTING INTEREST IN MEDICAL GENETICS THROUGH A STUDENT-LED INTEREST GROUP: AN INTERPROFESSIONAL INITIATIVE**

Zoë Mackay, BS<sup>1</sup>, Noreen Siddiqi<sup>1</sup>, MS, Reid McMurry<sup>1</sup>, MS, Shoumita Dasgupta, PhD<sup>2</sup>

<sup>1</sup>Boston University School of Medicine <sup>2</sup> Boston University School of Medicine, Department of Medicine, Biomedical Genetics Section

As genomic information is integrated into clinical practice, there is an increasing need for health care professionals to be well-versed in the approaches of genomic medicine. Currently there are 2 clinical geneticists per 1 million people in the United States. According to the American College of Medical Genetics and Genomics, only 50% of available clinical genetics training slots in the United States are routinely filled. The scarcity of clinical geneticists is a barrier to care for people with genetic conditions, and the shortage of patient-facing genetic counselors amplifies this problem. If the growing need for clinical geneticists is to be met, medical schools must facilitate interest in the field through enrichment and professional development opportunities. The Genetics Interest Group (GIG) was started in fall 2018 at Boston University School of Medicine (BUSM) to meet this need. The vision of this organization is to promote the equitable implementation of genetic testing and therapy in clinical practice by educating future providers. The GIG hosted a podcast discussion, several guest-speakers and patient-advocates, and participated in a community health fair and Career Expo. The GIG also made genetics shadowing and research opportunities available to students. Both genetic counseling and medical students participated in this interprofessional group. At the end of the semester, all participants were surveyed. Survey results inform strategies for engaging students in genomic medicine through student interest groups. Important outcomes reported by many students include increased interest in medical genetics and improved understanding of the role of genetic testing and therapy in clinical practice. Guest-speakers most successfully promote interest and engagement. This suggests that future providers are interested in learning from patients with genetic conditions and may incorporate a knowledge of genetics into their clinical practice. Interprofessional interest groups also encourage critical partnership across the health professions beginning at the trainee stage.

## MAKING EPIDEMIOLOGY RELEVANT THROUGH INTERDISCIPLINARY CASE-BASED TEACHING

Cheryl McSweeney, MD, MPH<sup>1</sup>; Shoumita Dasgupta, PhD<sup>2</sup>; Sharon Phillips, MSc, MD<sup>3</sup>; Molly Cohen-Osher, MD, MMedEd<sup>1</sup>

<sup>1</sup>Department of Family Medicine, Boston University School of Medicine

<sup>2</sup>Department of Medicine, Biomedical Genetics Section, Boston University School of Medicine

<sup>3</sup>Department of Family Medicine, Tufts Medical Center Community Care

**Background:** As educators, we are striving for methods that will make our teaching engaging and memorable for learners. The use of active learning methods has the potential to increase student retention and ability to apply learned concepts. Moreover, creation of interdisciplinary educational activities allows students to engage in application of material in the context of clinically-relevant situations.

**Methods:** In 2018, we developed an interdisciplinary case to blend the learning of epidemiology and health systems with medical genetics. Students were prompted to consider the value of offering genetic testing for hereditary risk of breast cancer, currently recommended for high risk individuals, to the general population, an extension of current screening recommendations. The students used data to calculate the positive predictive value of this genetic test in different populations. Students applied this information in small groups to a discussion of the ethics of genomic medicine and the implications of their calculations on health policy around the implementation of screening tests. Discussion was either conducted independently outside of class (2018) or was facilitated by a pair of experts in public health and genetics (2019). Student responses to the questions posed in the case were graded to assess the quality of responses and the understanding and integration of the material. Students also completed an in-class survey about the small group experience.

### **Results:**

To assess the effectiveness of the case in increasing the retention of epidemiologic concepts, performance on a multiple choice exam given after the case was compared with the performance on the same exam from the year prior to implementation. Use of the case both independently and in facilitated groups improved performance on the exam.

### **Conclusions:**

The use of a case method that allows for the practice and then application of these concepts to relevant, real-life medical situations has the potential to increase the engagement of students in learning and their retention of the concepts. The methods we used can be applied to implement additional case-based approaches that integrate disparate topics into meaningful learning experiences across disciplines.

## CAN A BRIEF LEARNING SESSION IMPROVE MEDICAL STUDENT KNOWLEDGE OF INTERPROFESSIONAL COLLABORATION?

Heather Miselis, MD; MPH; Arvin Garg, MD; MPH and Megan Young, MD

**Background:** Although, the Liaison Committee on Medical Education (LCME) has charged medical schools to “prepare medical students to function collaboratively on health care teams that include health professionals from other disciplines as they provide coordinated services to patients” (LCME, 2018, p.11), how best to prepare students within the traditional medical curriculum is not known. We embedded interprofessional learning objectives to an existing curriculum and assessed the impact of this introduction to interprofessional education (IPE) for medical students beginning their clinical experiences.

**Methods:** 180 3<sup>rd</sup> year medical students participated in *It Takes a Village* learning session. Students were given a brief introduction including the core domains of IPE as defined by IPE Collaborative (IPEC, 2016) and were asked to work through two patient cases in groups of ten. Representatives from interpreter services, child life, patient advocacy, physical therapy, social work, chaplaincy and pharmacy spoke about their role and then circulated with faculty facilitators representing multiple medical specialties to support the student groups. Students worked through each case in their role as a medical student provider and then again with several students representing providers from other disciplines in the inpatient setting (i.e. nursing case manager, social worker, child life specialist, nutritionist, etc.). Debriefing occurred in small groups. To assess the effect of the intervention on student knowledge in several interprofessional competencies, participants completed a 5 question self-assessment survey before and after the session.

**Results:** At the conclusion of the case-based forum, students demonstrated an increase in their self-rated assessment in all 5 interprofessional competencies measured with the largest change noted in their ability to “inform care decisions by integrating the knowledge and experience of other health professionals” and “understand the roles and responsibilities of other health professions.”

**Conclusion:** This session served as an effective introduction to interprofessional collaboration for medical students.

**\*\*Best Faculty Abstract\*\*****STUDENT REFLECTIONS OF A LARGE GROUP INTERPROFESSIONAL EDUCATION SESSION**

Angela Reffel MHP, PA-C; Susan E. White MD; Heather Miselis MPH, MD and Priya Garg MD

Interprofessional education (IPE) is defined as students from two or more professions learning about, from and with each other and prepares students for work on collaborative teams. IPE is a required curricular accreditation standard for medical schools and physician assistant (PA) programs. At Boston University School of Medicine (BUSM), medical students and PA students are enrolled in a yearlong didactic course, Disease and Therapy. To increase their IPE experiences a session entitled Introduction to Interprofessional Collaborative Practice was piloted in July 2018. The learning objectives (LO) were linked to the four core competencies of the Interprofessional Education Collaborative (IPEC) with topics of LO1. Professional Training (Core Competency Domain 1); LO2. Professional Roles (Core Competency Domain 2); LO3. Communication (Core Competency Domain 3); and LO4. Collaborative Patient Centered Care (Core Competency Domain 4). The two-hour session focused on patient centered collaborative care. A panel of six healthcare professionals discussed their training, roles and responsibilities. Small groups of students worked on one of two cases followed by a large group discussion. Following the session, students listed three things they learned, and the 212 files were analyzed using Nvivo 12 Pro software. Four themes emerged which directly related to the learning objectives. The session was most successful in meeting the LO for Healthcare Professional Roles (LO2) and Collaborative Patient Centered Care Practice (LO4) with 70% and 75% of student files containing relevant statements. Collaborative Patient Centered Care Practice (LO4) was supported by two themes with 75% of statements noting Collaborative Practice and 64% mentioning Patient Centered Care. Professional Training (LO 1) was not mentioned by any students. While only 40% of students mentioned communication (LO 3), most did so in the context of patient care. The session was most successful in meeting the LO for Professional Roles and Collaborative Patient Centered Care.

## PHD ADMISSIONS WITHOUT GRE SCORES: A BU CASE STUDY

Brigitte Ritter, PhD, Department of Biochemistry, BUSM  
Andrew J. Henderson, PhD, Department of Medicine, BUSM  
David E. Levin, PhD, Department of Molecular & Cell Biology, BUGSDM  
Gregory A. Viglianti, PhD, Department of Microbiology, BUSM  
Barbara M. Schreiber, PhD Department of Biochemistry, BUSM

A growing number of colleges and universities in higher education are dropping the requirement for GRE scores in graduate program admission\*. We used the recent 2018-2019 admissions cycle of the PhD Program in Biomedical Sciences (PiBS) at BUSM to implement a pilot study to compare evaluation outcomes for a subset of applications for which GRE scores were either evaluated as part of the PiBS admissions committee review or omitted during review by a so-called shadow admissions committee. Both committees rated applications on academic strength, prior research or clinical experience, personal statement, and letters of recommendation. Each committee also assigned recommendations to invite applicants for in-person interviews, hold applications for reconsideration, or reject applicants. Of the 65 applications included in the pilot study, 75% received identical recommendations from both committees, demonstrating that for a large majority of applications, GRE scores did not affect outcome. For the 16 applications that received non-unanimous recommendations, 12 were selected for interview invitations by the PiBS admissions committee but not by the shadow committee, which instead recommended either hold or reject. The remaining four applicants were placed on hold by the PiBS admissions committee whereas the GRE-blinded reviewers recommended the applicants be offered an interview. Interestingly, the average GRE scores for quantitative and verbal reasoning for candidates favored in the GRE-redacted review were significantly lower than the average scores for applicants mutually selected for interview by both committees or favorably reviewed by only the PiBS admissions committee. Closer analysis of the application reviews revealed similar ratings for letters of recommendation and academic strength by both committees across all applications. In contrast, ratings for personal statement varied the most across applications with divergent committee recommendations, suggesting that more guidance on personal statements, for both applicants and reviewers, may allow for a more consistent evaluation, independent of the inclusion or omission of GRE scores in the process. Together, these data show that evaluation outcomes were identical for the large majority of applicants, independent of the use of GRE scores. In addition, inclusion of GRE scores in the application review process appears to have opposing effects for a small number of applications, providing a boost to one subset of applications while lowering the chance of success for a pool of otherwise qualified applicants. Since there are no measures other than consideration for interview, the study cannot assess which committee would have accepted a more qualified applicant pool.

\* For the latest list of programs not requiring GRE scores, please visit <https://docs.google.com/spreadsheets/d/1MYcxZMhf97H5Uxr2Y7XndHn6eEC5oO8XWQi2PU5jLxQ/edit-gid=0>

## NO ONE TO ANSWER THE CALL: INFORMED CONSENT WITH HEALTH CARE PROXIES IN THE NURSING HOME POPULATION

Janet Seo<sup>1</sup>; Mary Njenga<sup>2</sup>; Shrish Budree, MD MBChB DCH FCPeds<sup>2</sup>; Christine Liu, MD, MS<sup>1</sup>  
<sup>1</sup>Section of Geriatrics, Boston University School of Medicine, Boston Medical Center, Boston, MA; <sup>2</sup>OpenBiome, Somerville, MA

**Purpose:** The nursing home population has a high prevalence of dementia and many nursing home residents have decisions made by their health care proxies (HCP). Our purpose is to identify the barriers of informed consent involving nursing home residents. Such information can be used to educate others about the complexities of the informed consent process in the nursing home population.

**Methods:** Our study recruited nursing home residents aged 65 years or older for a randomized controlled clinical trial of fecal microbiota transplantation. The study team identified eligible residents through medical chart review. We then approached eligible residents and HCPs for consent to enroll in the study.

**Results:** Of the 393 residents deemed eligible, 277 had decisions made by their HCPs (70%). Of those, 100 HCPs could not be reached after at least two attempts of contact (36%); the study team lacked the correct contact information for 10 HCPs (4%). In addition, 11 residents, who appeared to be cognitively intact during chart review, were deemed to be otherwise when approached by the study team. We lost 26 residents after their HCP initially expressed interest, but did not follow up subsequently (9%). Of the 78 residents enrolled in the study, 46 had HCPs (59%).

**Conclusions:** Majority of the enrolled residents have HCPs; exclusion of those with unreachable HCPs likely biased our study population. Future studies in the nursing home population should include education about strategies to compensate for this barrier.

## FROM SOCIAL DETERMINANTS OF HEALTH TO EQUITY: A POTENTIAL ADVOCACY-BASED MODEL FOR MEDICAL SCHOOL CURRICULUM

Heather E. Sweeney, B.S., Class of 2020, BUSM; Armide Storey, B.S., Class of 2020, BUSM; Jamie Lim, B.S., Class of 2019, BUSM; Tithi Baul, M.P.H., Department of Psychiatry, BMC; Christina P.C. Borba, Ph.D., M.P.H., Department of Psychiatry, BMC, BUSM; Megan Sandel, M.D., Department of Pediatrics, BUSM; Priya Garg, M.D., Medical Education Office and Department of Pediatrics, BUSM

**Background:** Undergraduate medical education(UME) has increasingly included Social Determinants of Health (SDH) in their curricula with variable success. Most UME SDH-related curricula focus on identifying patients' social risk factors rather than exploring the systems that underlie those risk factors. At BUSM, an optional enrichment course,

**Spectrum of Physician Advocacy-1 (SPA1)**, chose to utilize a social determinants of equity (SDE) framework with a focus on preparation for advocacy as a potential model for future UME SDH curricula.

**Methods:** In the 2018 spring semester, SPA1 delivered eight sessions as their core SDE curriculum. This student-led, faculty-mentored curriculum was offered to 1<sup>st</sup> and 2<sup>nd</sup> year medical and dental students. Intersections of racism and classism were woven into each session as a longitudinal themes. Each session included pre-reading organized in a syllabus, a didactic component, and an interactive session with one or more SDE expert speakers. An evaluation with Likert-based questions (strongly disagree to strongly agree) and open comments was administered pre-post the course and post each session. Data was analyzed using a mixed-methods approach.

**Results:** 39 students participated in the course. The course evaluation response rate was 56% and the average response rate for each session's evaluation was 96%. 91% strongly agreed that they understood the factors that led to the rise of health inequity in the United States. 88% of students agreed that they will use the information they learned in their future, and 100% agreed *that patient advocacy will be an important part of their future careers.*

**Discussion:** Through exploring SDE, students who participated in the SPA1 curriculum gained a deeper understanding of SDH and aspired to become physician advocates. The framework of equity moves students beyond knowledge transfer towards preparing them for SDH advocacy experiences. An SDE framework should be integrated into core medical school curricula.



## SUGGESTED READINGS

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