

**BOSTON
UNIVERSITY**

19th Annual John McCahan Medical Campus Education Conference

May 22-23, 2024



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

Theme: Building Collaborative Education Research

Chobanian & Avedisian School of Medicine

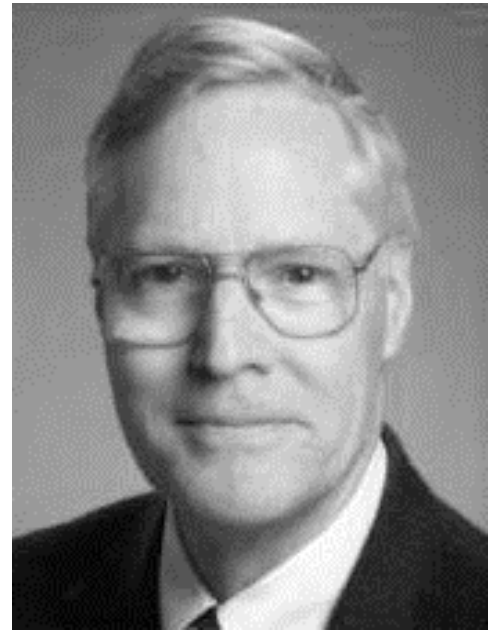
Goldman School of Dental Medicine

School of Public Health

Graduate Medical Sciences

John F. McCahan, M.D.

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



Karen Antman, M.D.
Provost, Boston University Medical Campus
Dean, Aram V Chobanian & Edward Avedisian School of Medicine
Professor of Medicine
72 East Concord Street, L103
Boston, Massachusetts, 02118-2526

Dear Colleagues,

Welcome to the 19th annual John McCahan Medical Campus Education Conference. Dr. McCahan served as the school's Associate Dean for Academic Affairs for 30 years, and then as Dean from 2003 to 2005. We are pleased to celebrate Boston University medical campus educators with a day of stimulating speakers, workshops, and innovative ideas to inform and inspire.

This year's theme is on *Building Collaborative Education Research*. Workshops and poster presentations at the John McCahan Education Conference will cover a variety of topics relevant to the theme to engage our educators in reevaluating how we teach, test and assess students, educational models and methods.

Our keynote speaker is **Binyomin Abrams, PhD**, Research Associate Professor of Chemistry at Boston University. Dr. Abrams uses his teaching role as an opportunity to engage in the scholarship of teaching and learning, doing research on pedagogy, investigating new educational approaches, developing tools and techniques to improve student learning, and advancing equity-focused approaches to STEM instruction.

Dr. Abrams now also holds a secondary appointment in the BU Wheelock College of Education and Human Development, serves as the Director of General Chemistry, and is the Director of the College of Arts and Sciences Program in Science Education.

Come, connect and enjoy the dialogue with your colleagues.

Sincerely,

A handwritten signature in blue ink, appearing to read "Karen" followed by a stylized monogram.

Karen H. Antman, M.D.
Dean, Boston University School of Medicine
Provost, Boston University Medical Campus

ACKNOWLEDGMENTS

John McCahan Medical Campus Education Day conference was first held in 2006 to honor Dr. McCahan's decades of educational contribution to both medical and graduate education at Boston University Medical Campus with a support from Medical Campus Provost and Dean Karen H. Antman, M.D. Each year, dedicated BUMC educators volunteer their time to organize the conference under the oversight of the Department of Medical Sciences & Education. The conference organizers would like to acknowledge with appreciation the contributions of the planning committee:

Department of Medical Sciences & Education	Hee-Young Park (Professor and Chair) Kathleen Berentsen Swenson Paige Curran Theresa Davies David Flynn Stacey Hess-Pino Maura Kelley Elaine Lee (Planning Committee Leader)
---	---

BUMC IT, Educational Media	Jana Mulkern Jack Wolfe Andrew Zubiri David King
-----------------------------------	---

BU Chobanian & Avedisian School of Medicine	Laurie Craigen Jeannine Foley Christopher Schonhoff Jonathan Wisco Aaron Young
--	--

BU Goldman School of Dental Medicine	Yoshiyuki Mochida Afsheen Lakhani Breno Reboucas
---	--

BU School of Public Health	Lisa Sullivan
-----------------------------------	---------------

Alumni Medical Library	David Flynn Young Joo Moon
-------------------------------	-------------------------------

Medical Education Office	Caroline Mulligan Elizabeth Yellen
---------------------------------	---------------------------------------

Barry M. Manuel Center for Continuing Education	Claire Grimble
--	----------------

Dean's Office	Daniella Adrien
----------------------	-----------------

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 Chobanian & Avedisian School of Medicine

Graduate Medical Education, Boston Medical Center

Dean's Office, Boston University Goldman School of Dental Medicine

Dean's Office, Boston University Chobanian & Avedisian School of Medicine

Medical Education Office, Boston University Chobanian & Avedisian School of Medicine

Office of Student Affairs, Boston University Chobanian & Avedisian School of Medicine

Dean's Office, Boston University School of Public Health

BUMC IT, Educational Media

Alumni Medical Library

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



anthology



echo360®



19th Annual John McCahan Medical Campus Education Conference

Schedule of Events

Theme: Building Collaborative Education Research

Wednesday, May 22, 2024 *Virtual Vendor Spotlight Session*

2:00-2:30 pm

Blackboard Learn Ultra by Anthology

Thursday, May 23, 2024

8:30 am-9:00 am

Coffee, Networking & Vendor Visits

9:00 am-10:30 am

Welcome, Karen Antman, MD, Provost, BU Medical Campus

Keynote: *Evolution of a Student-Driven Collaborative Research Project to Address Equity in STEM Participation*

Binyomin Abrams, PhD, Research Associate Professor, Director of General Chemistry, College of Arts & Sciences, Boston University

Hiebert Lounge, 14th floor

10:30 am-10:45 am

Vendor Introductions

11:45 am-11:00 am

Travel to Workshops

11:00 am-12:30 pm

Workshops (see pages 11–15 for descriptions)

Workshop A: Redesigning Courses in the School of Medicine to Promote Flipped Learning and Application in Blackboard Ultra
Cohen-Osher & Garg, Chobanian & Avedisian SOM
Classroom: L-210

Workshop B: Deconstructing Concepts of “Professionalism” to Foster an Inclusive Medical Education Experience
Zayhowski & Sosa, GMS, Chobanian & Avedisian SOM
Classroom: L-206

Workshop C: Creating a Best Self Toolkit: Learning and Understanding Strategies Based on Positive Psychology Principles for Promoting Being Our Best Selves

Lopez & Block, Chobanian & Avedisian SOM and Wheelock
Classroom: L-209

Workshop D: Feedback Not Evaluation: Using Reflection for an Effective Constructive Dialogue Between Students and Faculty
Agudelo, Dookran, Senkyre & Markuns, D&I, GMS, and Chobanian & Avedisian SOM
Classroom: L-212

Workshop E: Applying Dual Processing Theory to Feedback Conversations
Wisco & Neri, Chobanian & Avedisian SOM
Classroom: L-214

12:45 pm-2:00 pm

Lunch, Networking & Vendor Visits

2:00 pm-2:30 pm

Educator Awards

GMS Faculty Recognition Award

*Boston University Henry M. Goldman Faculty Appreciation Award –
Predoctoral Category*

*Boston University Henry M. Goldman Faculty Appreciation Award –
Postdoctoral Category*

*Crest Oral-B P&G Professional Oral Health Excellence in Teaching in
the Basic Sciences Award*

BUSPH Educational Innovation Award

Chobanian & Avedisian SOM Affiliate Teaching Award

*Chobanian & Avedisian SOM Kaiser Permanente Silicon Valley
Affiliate Teaching Award*

2:30 pm-3:00 pm

Abstract Winners and Award Presentations

Best Faculty & Staff Abstract (see page 48, # 29)

CASPer Situational Judgement Test Score as a Predictor of Success

John Weinstein, PhD, MS, Robert O'Brien, MPAS, MPH, Dan Tzizik,
DrPH, MHS, Aliza Stern, MMSc, PA-C

Best Resident & Fellow Abstract (see page 36, #19)

Leveraging Virtual Reality (VR) for Interprofessional Competency Development to Address Social Drivers of Health (SDH)

Joo H. Lee, MD, Stacey Zawacki, DrPH, RDN, Heather Miselis MD, MPH, Linda Sprague Martinez, PhD, Aliza Stern, MMSc, PA-C, Rachel Thompson, MD, Maria Emilia Bianco Galindez, PhD, MSW, Pablo Buitron de la Vega, MD, MSc

Best Student Abstract (see page 27, #10)

A Novel Preclinical Cardiac Ultrasound and Electrocardiography Program and its Impact on Professional Identity Formation

Lindsay A. Claus, MS, Rutvin Kyada, BA, Michelle Cheng, BA, Luke, Scheuer, MS, Martin Liberman, MS, Matthew Kang, BS, Michael Rynkiewicz, PhD, Alex Clos, MD, Jonathan Wisco, PhD

3:00 pm-4:30 pm

Posters, Networking & Vendor Visits

INSTITUTIONAL DESIGNATIONS:

BMC	Boston Medical Center
BUMC	Boston University Medical Campus
Chobanian & Avedisian SOM	Chobanian & Avedisian School of Medicine
D&I	Diversity & Inclusion Office
GMS	Graduate Medical Sciences
GSDM	Henry M. Goldman School of Dental Medicine
SPH	School of Public Health

JOHN MCCAHAN MEDICAL CAMPUS EDUCATION CONFERENCE AWARDS

Graduate Medical Sciences 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.

Boston University Henry M. Goldman Faculty Appreciation Award – Predoctoral Category

This award goes to the predoctoral faculty member recognized for dedication to the educational mission of our school. The individual embodies qualities of teaching excellence, mentorship, professionalism, and service.

Boston University Henry M. Goldman Faculty Appreciation Award – Postdoctoral Category

This award goes to the postdoctoral faculty member recognized for dedication to the educational mission of our school. The individual embodies qualities of teaching excellence, mentorship, professionalism, and service.

Crest Oral-B P&G Professional Oral Health Excellence in Teaching in the Basic Sciences Award

This award goes to the faculty member selected by the DMD first-year class who has had the greatest impact on learning in the basic sciences and oral biology. The individual demonstrates a passion for their subject and provides a positive learning experience for students.

Boston University School of Public Health 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.

Chobanian & Avedisian School of Medicine Affiliate Teaching Award

This award recognizes superlative clinical teaching in the third year by Chobanian & Avedisian School of Medicine faculty at affiliated sites and is determined solely on input from students.

Chobanian & Avedisian School of Medicine Kaiser Permanente Silicon Valley Affiliate Teaching Award

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

BLACKBOARD® LEARN ULTRA

The LMS that gives you more

It's more flexible. More inclusive.
More insightful. And it allows you
to deliver more of the personalized
experiences that drive success
for everyone.

With Blackboard Learn Ultra, you can:

- + Support students' success with **actionable, inline insights**
- + Save time with **streamlined workflows and grading**
- + Encourage collaboration through **advanced communication skills**
- + Enjoy a **consistent teaching experience across all devices**
- + Empower choice and build **inclusive learning environments**
- + Enhance courses by **leveraging AI** to recommend royalty-free images and authentic assessments
- + Improve outcomes with **engaging assessments and reduced test-taking anxiety**

Get to know Blackboard® Learn Ultra at
anthology.com/more-to-learn



Blackboard LEARN BY ANTHOLOGY

Workshop A

Redesigning courses in the school of medicine to promote flipped learning and application in Blackboard Ultra

Molly B Cohen-Osher MD, MMedEd¹, and Priya Garg, MD²

¹Family Medicine; ²Pediatrics, Chobanian & Avedisian SOM

Room L-210

In Fall of 2022 the School of Medicine redesigned the pre-clerkship curriculum to promote a flipped and application-based instructional design to foster deep learning, team-work and clinical reasoning. The design included the creation of self-learning guides for content delivery, which included videos, images and text, designed in a thoughtful way by faculty to intentionally help students learn the material. These self-learning guides were housed as self-study documents in Blackboard Ultra and allowed for direct embedding of pictures and videos that could be used by the students. Further Blackboard Ultra enabled students to track what they had and had not yet reviewed to further assist students in learning the materials. A series of self-learning guides are followed by knowledge self-assessment questions for students to complete and IRAT and TRAT questions in the beginning of any Team-Based Learning sessions which were able to be designed and housed in Blackboard Ultra as well. During this session we will provide both the educational rationale for the shift in instructional design, and review how Blackboard Ultra was able to support the creation and delivery of those materials supporting content delivery as well as application. We will also demonstrate the improved user interface of Blackboard Ultra including better navigation for faculty and students, improved accessibility, ease of use on any screen size, including a mobile device and some of the AI tools that are now available to help with site design and question generation. Both representatives from educational technology and the Blackboard Ultra vendor will be present in this session to assist faculty and answer questions.

Target Audience: Faculty, staff

Learning Objectives:

1. Describe the educational theory supporting a flipped and application model of teaching and learning
2. Explain the functionality of Blackboard Ultra to support a flipped and application-based course
3. Build course materials in Blackboard Ultra
4. Discuss how both this instructional design and Blackboard Ultra can be used for the participant's own courses

Session Outline:

- 0-10 min: Review the educational theory supporting a flipped and application model of teaching and learning
- 10-20 min: Review SOM course design and how it is designed in Blackboard Ultra
- 20-30 min: Small group work: Brainstorming how a flipped/application-based can be used in participant's own course.
- 30-35 min: Group report out
- 35-50 min: Demo of blackboard additional functionality and building in blackboard
- 50-80 min: Participants will have an opportunity to go to a sandbox to start building in Blackboard ultra and presenters, ed tech and vendors will circulate to answer questions and help.
- 80-90 min: Participant report out and Q&A

Workshop B

Deconstructing Concepts of “Professionalism” to Foster an Inclusive Medical Education Experience

Kimberly M. Zayhowski, MS, CGC, and Lillian Sosa, MS, CGC

Genetics Counseling Program, GMS, and Obstetrics and Gynecology, Chobanian & Avedisian SOM

Room L-206

This workshop endeavors to critically examine the hidden curriculum entrenched within medical education, spotlighting the repercussions of conventional ideals of professionalism, often rooted in white supremacy, on learner experiences. Through the lens of inclusivity, we endeavor to redefine professionalism, aspiring to foster environments conducive to the comprehensive growth of healthcare professionals.

Target Audience: Medical educators, curriculum developers, healthcare professionals, and administrators interested in promoting inclusivity and reimagining professionalism in medical education

Learning Objectives:

Upon completion of this workshop, learners will be able to:

- Define the explicit and implicit principles of professionalism in healthcare and higher education.
- Explore the historical context and evolution of professionalism in medical education.
- Contrast traditional frameworks of professionalism with contemporary principles of inclusivity, diversity, and equity.
- Apply concepts of the hidden curriculum, identity consciousness, and inclusive pedagogy to analyze case scenarios in medical education.
- Identify instances of the hidden curriculum in participants' educational environments.
- Collaborate with peers to develop actionable strategies for fostering inclusivity and reimagining professionalism in medical education.

Session Outline:

- Introduction to workshop and overview of objectives (10 minutes)
- Presentation on the historical roots and current standards of professionalism in medical education (15 minutes)
- Discussion on the hidden curriculum and its implications for learner experiences (10 minutes)
- Exploration of case scenarios applying inclusive pedagogy and identity consciousness (20 minutes)
- Identification of hidden curriculum manifestations in participants' educational environments (10 minutes)
- Collaboration to develop strategies for promoting inclusivity and reimagining professionalism in medical education (25 minutes)

Hands-On and/or Group Work: Participants will engage in group discussions, case analyses, and collaborative activities aimed at applying concepts discussed during the workshop. Through interactive exercises, participants will have the opportunity to share insights, exchange ideas, and collectively develop actionable strategies for fostering an inclusive learning environment in medical education.

This workshop was previously presented at Genetic Counselor Educators Association on July 21, 2023.

Workshop C

Creating a Best Self Toolkit: Learning and Understanding Strategies Based on Positive Psychology Principles for Promoting Being Our Best Selves

Marisol E Lopez, PhD,¹ and Carly Block, PhD, CMPC²

¹Pharmacology, Physiology & Biophysics, Chobanian & Avedisian SOM; ²Counseling and Applied Human Development, Wheelock College of Education & Human Development

Room L-209

Our student and trainee population face many stressors including academic and financial responsibilities, work life balance, and socializing. In addition, faculty members are charged with many teaching, research, clinical, and service responsibilities which can lead to burnout. These challenges may negatively affect how we manage our everyday responsibilities and daily interactions with our colleagues and the audiences we serve. Using positive psychology-based interventions can be a helpful way to navigate these challenges and mitigate potential negative outcomes. Research has shown that medical students and physicians who have utilized these types of interventions have experienced an increase in their overall well-being. While these interventions are helpful, a barrier to implementing these practices is the difficulty finding time in the day for regular implementation. Thus, the purpose of this interactive workshop is to provide you with the background and application of positive psychology principles that can be implemented into regular daily practice.

Target Audience: Faculty, students, and residents

Learning Objectives:

- Review theories and evidence of positive psychology.
- Design an activity using a positive psychology principle.
- Identify personal strengths and their relevance to the work we do.
- Learn strategies and access tools to continue developing their toolkit.

Session Outline:

- **Opening Introductions (10 min):** The audience will get into small groups to share their thoughts and feelings around happiness. This activity will allow the audience to interact and ignite reflection related to positive psychology.
- **Educational Background on Positive Psychology (15 min):** The presenters will provide information on what it is, definitions/concepts, and theories behind this field of psychological study.
- **Strengths-Based Psychoeducation/Reflection (20 min):** The audience will be provided a brief-psychoeducation on strengths-based approaches and will have an opportunity to self-reflect on and identify their own strengths.
- **Strengths Activity/Discussion (15 min):** In small groups, the audience will share what common challenges they must navigate in their work. After discussion, they will work together and discuss how they can use their strengths to combat or cope with these challenges.
- **Self-Affirmations (10 min):** The audience will first learn another strategy to add to their positive psychology toolkit. From there, the audience will participate in a large group activity to practice this strategy.
- **Mindfulness (10 min):** The audience will first learn another strategy to add to their positive psychology toolkit. From there, the audience will participate in a large group activity to practice this strategy.
- **Resources/Conclusion (10 min):** The workshop will end with the audience being provided additional resources to help them continue to build their skills, utilize their toolkit, and support their overall well-being.

Workshop D

Feedback Not Evaluation: Using Reflection for an Effective Constructive Dialogue Between Students and Faculty

Felipe Agudelo, PhD, MPH,^{1,2} Jeselle Dookran DO, MSc Health Professions Education (Candidate),³ Ephraim Senkyre BSc, RGN, CGNC, MSc Health Professions Education (Candidate),³ and Jeff Markuns, MD, EdM⁴

¹Diversity & Inclusion Office, ²General and Internal Medicine, ³Graduate Medical Sciences, and ⁴Medical Sciences & Education, Chobanian & Avedisian SOM

Room L-212

This session aims to familiarize educators with the skills to provide effective feedback to learners. Often, feedback and evaluation can be confused or even used interchangeably; however, the two are very different. Feedback is essential for building collaboration and growth in the settings of mentorship, research, preclinical and clinical environments.

This workshop will utilize discussion, reflection, role-play and hands-on activities to distinguish between evaluation and feedback in clinical, preclinical and mentorship settings. Participants will also become familiar with the importance of reflection for both the educator and learner, and engage in sharing personal experiences in the challenges of setting a positive learning climate that provides a space for growth — as the backdrop for delivering feedback. Finally, participants will practice and critique examples of techniques for providing effective feedback.

Target Audience: Educators and/or mentors seeking to provide more effective feedback for learners and mentees

Learning Objectives:

Upon completion of this workshop, learners will be able to:

- Utilize reflection in feedback
- Identify the differences between feedback and evaluation
- Develop a positive learning environment to provide feedback to students
- Employ effective feedback techniques

Session Outline:

Overview (10 min): Introduction, review learning objectives, defining feedback vs. Evaluation

Creating a positive learning climate:

- Discussion and video examples (10min): defining and examples of positive and negative learning climates.
- Breakout activity – Critical incident discussion (10 min): Learning climates – discuss personal experiences in various learning climates – decipher components of each, pros/cons
- Debrief (10 min) – report back to main group.

Overview: Introduction about feedback and reflection for objective feedback in clinical, non-clinical and Mentorship environments

- Breakout activity (15 min): Role-play, reflecting and giving feedback
- Critical incident – taking time to reflect to provide feedback
- Debrief as a group (10 min)

Take-away points (10 min): Final thoughts, Q&As

- Positive learning environment development
- Feedback as a process of growth and not punishment
- Establish relationships of trust
- Invite attendees to reflect on their performance.

Workshop E

Applying Dual Processing Theory to Feedback Conversations

Jonathan J. Wisco, PhD,¹ and Caitlin Neri, MD, MPH²

¹Anatomy & Neurobiology and ²Pediatrics, Chobanian & Avedisian SOM

Room L-214

Providing and receiving constructive feedback is one of the most important and influential conversations in any learning space. Whether in the classroom, laboratory, or clinic, students both appreciate feedback when provided and request feedback when it is missing; it is an essential component of learning. Evidence shows that a feedback space that is intentional, caring, trusting, optimistic, and respectful provides the best opportunity for learning, whether the context is during teaching moments or emergent situations.

In the Principles Integrating Science, Clinical Medicine, and Equity (PISCEs) course at the Chobanian & Avedisian School of Medicine, two separate in-person feedback mechanisms are available for students and faculty to exchange ideas for improving both current module and overall course – the module specific Student Advisory Committee (SAC) and the longitudinal PISCEs Student Engagement Panel (PSEP). In both, students and faculty discuss specific aspects of the content, application sessions, and assessments that promote or are barriers to the learning and teaching process. In order to ensure that sessions are inclusive, productive, and lead to improved learning outcomes, we provide a brief training in the application of elements of Daniel Kahneman's Dual Processing Theory to understand how to establish and maintain feedback conversations. Namely, we cover two psychological and emotional governing values of human behavior during difficult conversations: In general, 1) people become defensive when they feel threatened, uncertain, or embarrassed; AND 2) people become collaborative when they feel safe, included, and valued.

Target audience: In this workshop, we will share how we use principles of Dual Processing Theory to establish inclusive and safe feedback spaces and analyze cases that illustrate practical application. The skills taught in this workshop can be generalizable for any students and faculty in classroom, laboratory and clinical situations when receiving and providing feedback is central to the learning process.

Learning Objectives:

By the end of the Workshop, participants will be able to:

- Apply Dual Processing Theory to feedback interactions
- Identify three types of feedback obstacles
- Distinguish between appreciation, coaching, and evaluation messages
- Describe the five invitational elements
- Create two growth mindset messages for feedback situations
- Apply principles of effective feedback through role-play

Session Outline:

- Facilitators will discuss challenges difficult feedback conversations can provoke and how an understanding of Dual Processing Theory can improve interpersonal interactions (10 min)
- Facilitators will introduce feedback obstacles (5 min)
- Facilitators will share three tools designed to address each feedback obstacle and participants will work through cases of scenarios that use the tools (60 mins total, 20 mins for each tool)
- Wrap-up (5 mins)

This workshop was previously presented at International Association of Medical Science Educators (IAMSE) on June 5, 2022.

ABSTRACTS

* 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 1–3

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 4–34

A Novel Approach to Modernize Pathology Education Using a Multi-Layered Digital Image

Mostafa Belghasem, MD, PhD, Elizabeth Duffy, MA, Chris Andry, PhD

Chobanian & Avedisian SOM, GMS, Pathology

Introduction / Background: Medical students are expected to have a good ability to interpret histopathological images. This goal is found to be very difficult by many students and can be a time-consuming task. It is even more challenging when a new image is encountered and the students are unable to transfer what they learned in a prior visual setting to the new one, despite knowing what to look for. Therefore, new strategies for improving pathology learning efficiency are needed.

Purpose / Objectives: Enhance student's descriptive histopathology skills; and enhance their ability to interpret pathology images and formulate differential diagnoses. Also, allow students to transfer and apply their knowledge gained from one image to a new image of the same pathology.

Methods: Using image editing and processing software, multiple plain layers are added to the high-quality pathology image (layer-0). Each additional plain layer is converted to a smart object and segmentally made transparent to allow certain underlying key morphological features to be apparent with less distraction from the rest of pathology section. This approach still allows the learner to visualize the section with the key pathology being prominent through the transparent segment of the new layer. These layers can be switched on-and-off to train the learner to recognize the different features and patterns of the pathological lesion through faded-style transitions. Ultimately, the pathology image (layer-0) is converted into an annotated animation and illustration to simplify the pathological changes in a semi-fictional manner. All these layers are eventually exported to PowerPoint compatible format that allows for further adjustments.

Results: Student evaluations indicated a very favorable response to this approach of pathology teaching and has significantly increased their confidence in interpreting histopathology images. The vast majority of students expressed a desire to have these exercises applied for all organ systems and courses.

This approach is very feasible and utilizes widely available software commonly used by most academic institutes.

My Medical Diary: Creating a Collaborative Platform to Integrate Medical Education

Jake Barrett, MD, David Law, Ashley Davidoff, MD

Chobanian & Avedisian SOM, Radiology

INTRODUCTION: The rapid acceleration of medical knowledge requires an ongoing and progressively increasing need for the student or scholar of medicine to retain information and knowledge. Our memory capacity is limited, and we therefore need to identify mechanisms provided by modern technology to enhance our recall and application of the information previously learned.

PURPOSE: We have developed a personalized tool that enables the student or scholar of medicine to diarize their experience and also provides tools to enhance the learning process. The tool is adaptable to the level of the user and reflects either a general curriculum such as the medical school curriculum or a focused subspecialty curriculum such as radiology. Curricular needs are a common need for a given community; the ability to share experiences and resources within the group adds to the advantages of such a tool.

Our pilot programs are focused on the creation of a radiology diary for medical students and a second diary for radiology residents. The diary uses open-source web technologies to allow medical students and residents to ensure their personal coverage of the curriculum and also to create pages for new concepts and experiences. A robust search algorithm enables easy recall (spaced learning, interleaved learning and tailored learning), and for later studying or teaching.

Multiple facets of the program are integrated into the diary hub, with games, and learning tools to enhance the collaborative experience. Topics can be searched easily by organ, pathology, or system using American Board of Radiology (ABR) and American College of Graduate Medical Education (ACGME) key terms; student uploads can be categorized using these terms to facilitate interaction with the material and the creation of a personal diary.

FINDINGS: The website has been created with testing ongoing, initial pre-rollout data is in the collection phase. We expect that students will use a plethora of resources for different things with a desire for a centralized method for studying. At the end of the test-phase, we expect that students will find the collaborative and integrative aspects of the diary to be helpful in their studies and nurture a life-long interest in collecting concepts and interesting cases in a centralized, searchable format.

CONCLUSION: Medical education requires new innovative approaches to harness technology to integrate learning into a platform that allows life-long learning and collaboration. The medical diary fulfils this requirement

Digital Dentistry: Opportunities for Faculty Calibration

Vasiliki Maseli, DDS, MS, EdM, Afsheen Lakhan, DMD, Matthew, Zweig, DMD, Hesham, Nouh, BDS, DSc, MSD

Goldman School of Dental Medicine, General Dentistry

All authors are equal contributors

Previously Presented at the America Dental Education Association (ADEA) on 3/11/2024

Introduction: This study is evaluating a Quality Improvement project to train/calibrate Restorative Dentistry faculty in the department of General Dentistry to fabricate a crown using the CAD/CAM technology that the school acquired in 2014. GSDM is committed to the use of CAD/CAM technologies but this technology exists in only about 25% of dental practices nationally. Therefore, it is important to maintain/train/calibrate the faculty for the skills necessary in order to use this technology since they might not have access to it anywhere except GSDM. Due to an approximately 4-5% annual attrition and new hires rate, there are many new faculty members since 2014 who were hired for their exposure or expertise in digital dentistry. Additionally, there has been an increased number of remakes of restorations that might be attributed to lack of knowledge on the part of the faculty member. Although much training was originally done when integration of this technology into the curriculum took place in academic year 2014-2015, training afterwards was often one on one or at a training facility off-site.

Objectives: The primary objectives of this survey study are: a) to assess the faculty members regarding their opinions about their readiness to use CAD/CAM (Computer-Aided Design/Computer-Aided Manufacturing) technology in teaching and delivery of care and b) to determine the effectiveness of the in-house two-day training regimen. In addition, this study aims: c) to determine faculty preference for methods used in training them to use CAD/CAM technology; d) to determine the current state of faculty involvement in CAD/CAM technology at their private practices; e) to evaluate faculty calibration in the use of current rubrics used when students deliver final restorations by having them self-evaluate their own milled crowns and onlays; f) to determine what kind of further training may be required by the faculty and g) to survey faculty preference for different polishing protocols used for porcelain vs polyceramic materials.

Methods: After IRB approval (IRB Number: H-39294, Exempt), all faculty who attended the training (56) were invited via email to complete an anonymous electronic survey on day 1, before beginning the training and again at the end of day 2, after training. The surveys were administered using the REDCap platform.

Results: A total of 56 faculty participated in the CEREC training. We received 56 responses for each survey (response rate 100%). The two-day training was very effective and positively affected the knowledge and the readiness of the faculty to use CAD/CAM technology in teaching and delivery of care.

Conclusion: It was highlighted that the faculty calibration plays a key role to the implementation of digital technology in the dental curriculum.

Development and Evaluation of a Hands-On Intensive for Education in Clinical Research

Nick A. Bosch, MD, MSc, Anica Law, MD, MS, Kari Gillmeyer, MD, MS, Christine Reardon, MD

Chobanian & Avedisian SOM, Medicine

Background: Fellowship training represents a critical point to train and launch the careers of future physician scientists. However, few pulmonary and critical care fellows go onto careers in academic research. One barrier to pursuing a research career is inadequate skills training and support.

Objective: To design and evaluate a two-day research course focused on meeting the early training needs of pulmonary and critical care fellows transitioning from clinical to research activities.

Methods: Following a needs assessment, we developed and implemented a research “Crash Course” curriculum for pulmonary and critical care fellows at Boston University. The two-day course (August 2022) included (1) didactic sessions on study design, reference software, and statistical programming and (2) interactive, faculty-guided, fellow-driven study question generation and study protocol development that led to a fellow-led peer-reviewed publication. The course was evaluated qualitatively through participant focus groups.

Results: Seven fellows participated in the pilot Crash Course. We identified 4 themes from post-course focus groups: (1) Learning styles: experiential versus didactic learning; (2) Building core research knowledge and skills (subthemes of developing a study question and learning programming language); (3) Creating a concrete research product; and (4) Inclusion of diverse learners. Fellow participants also made recommendations (e.g., literature search session) that were incorporated into subsequent Crash Courses. Results from the fellow project were published (PMID 36867519) with all participating fellows as co-authors within 12 months of the crash course.

Conclusion: Our novel, interactive research Crash Course, designed to fill training gaps for fellows transitioning from clinical to research experiences, represents a practical approach to experiential learning that can provide foundational research knowledge to help launch the careers of emerging physician scientists. Following the initial pilot, we have modified subsequent years’ courses by removing the didactics on statistical programming, adding didactics on searching the literature, and building in a 7-day gap between the two days accompanied by daily office hours with senior trainees and faculty to give time for crash course attendees to trouble shoot study design issues.

Mapping Dental Pathway Student Post-Graduation Outcomes to Underserved Areas

Karen R. Bottenfield, PhD, MS, Irobosa Enabulele, MS, Jinan Nasser, Theresa Davies, PhD

GMS: Oral Health Sciences, Chobanian & Avedisian SOM, Medical Sciences and Education

Background: The MS in Oral Health Sciences (OHS) at Boston University Chobanian & Avedisian School of Medicine, in collaboration with BU's Goldman School of Dental Medicine, is a rigorous, credential-enhancing, pathway program that enhances the academic preparedness of students for dental school admission. This includes students from disadvantaged backgrounds and those from historically underrepresented racial and ethnic (HURE) groups in dentistry. Since its inception in 2005, the OHS program has had over 400 graduates, 30% from HURE groups, with greater than 90% successfully matriculating to dental school.

Objectives: The goal of this study was to evaluate the career outcomes of OHS graduates following graduation from dental school. First, we assessed whether graduates opted to further their education by pursuing a dental specialty post-graduation or if they chose to enter practice directly as a general dentist. Second, we sought to evaluate the geographical distribution of graduates, with a specific focus on whether students from minority or disadvantaged backgrounds chose to practice in rural or underserved dental care areas.

Methods: Data from students enrolled in the OHS program between 2005 and 2018 were collected from deidentified OHS matriculation and graduation records capturing demographics including race, ethnicity, gender, disadvantaged and first-generation status, and post-career status. HURE information, including Black or African American, Hispanic or Latino, American Indian or Alaska Native, and Native Hawaiian or other Pacific Islander, was collected. Student career outcomes post-dental school were gathered from online platforms, including social media networks and LinkedIn. These outcome locations were then compared to American Dental Association data of national dental school graduates. Determinations of whether a practice location was considered underserved was determined from Health Professional Shortage Areas (HPSAs) for Dental Care designations, low dentist-to-population ratios, and socioeconomic indicators as reported by RHI Hub - HPSA - Dental Care data.

Results: A total of 75.1% of OHS graduates and 92.2% of HURE-OHS graduates pursued careers as general dentists post-graduation. A total of 24.9% of OHS graduates and 7.8% of HURE-OHS graduates opted for specialization in post-graduate programs, with substantial HURE representation within the pediatrics specialty program (4.4%).

When evaluating practice locations of all OHS graduates, a total of 41.7% chose to practice in underserved areas. Comparing practice locations of graduates from different groups, we observed a larger proportion of HURE graduates (57.8%) relative to disadvantaged groups (42.2%) opting to practice in areas marked by dental care shortages and socioeconomic challenges.

Conclusions: The study highlights the OHS program's significant success in providing a strong path for students who are disadvantaged and from underrepresented groups to overcome academic challenges and develop a successful career in dentistry. Graduates primarily practice general dentistry and often return to underserved areas to practice. This emphasizes the growing importance of creating pathway programs similar to OHS to enhance diversity and inclusion within the dental profession and address healthcare disparities.

Interleaving Interdisciplinary Ultrasound Skill Sessions into Pre-Clerkship Anatomical Courses/Dissection

Tyler J. Capen, MS¹, Jonathan Wisco, PhD¹, Martin Liberman, MS², Matthew Kang BS²,
Rutivn Kyada, BS²

GMS, Anatomy and Neurobiology¹ and Chobanian & Avedisian SOM, Medicine²

PURPOSE: Gross anatomy courses that intertwine ultrasound (US) skills have the distinct ability to not only expand a student's foundational knowledge but also to incorporate critical clinical skills that may enhance long-term retention. Our initial pilot study, focusing on the learning experiences of two students, suggested that long-term retention of primary anatomical structures was improved when dissection sessions were preceded by US. Building on this, we designed a more comprehensive pilot study to quantitatively compare the student learning experiences of learning US before the underlying anatomy versus the traditional approach of learning anatomy first followed by US. In the newly restructured pre-clinical curriculum at the Boston University Chobanian & Avedisian School of Medicine, students have the opportunity to develop and practice US skills. Those participating in these US sessions may encounter anatomical regions prior to learning the corresponding anatomy in detail.

METHODS: In this study, 23 medical students enrolled in the Anatomy and Ultrasound Medical Educator Fellowship volunteered to provide feedback on their learning experience with these two distinct educational approaches. The students were randomly divided into two groups: one group experienced US first and then anatomical dissection, and the other underwent anatomical dissection before US. Both groups received instruction in point-of-care US techniques for the anterior thigh and through cadaveric dissection of the femoral triangle. Following the sessions, the students completed a post-assessment survey with Likert-based responses, evaluating their practical skills in using ultrasound technology, their effectiveness in communicating medical information to patients, and their grasp of anatomical and clinical concepts. In addition, four students participated in a follow-up US skills assessment two weeks later to determine the impact of the educational approach on long-term retention.

RESULTS: The Mann-Whitney U tests applied to the Likert scores from the post-assessment revealed no statistically significant differences in the groups' confidence in their US skills and terminology. Similarly, no significant differences were found in the groups' abilities to image and identify the structures of the femoral triangle (femoral artery, femoral vein, femoral nerve, iliopsoas muscle, and deep fascia), or in their accuracy in locating these structures on US images. Feedback indicated that students who engaged in anatomical dissection prior to US felt better prepared, with remarks like "I knew the muscles surrounding the artery and vein because I just dissected them" and "I could visually see in a 3D way what the femoral triangle should look like," clearly showing a preference for dissection before ultrasound. This order of instruction reinforced their understanding and offered a concrete 3D visualization that facilitated the interpretation of abstract 2D ultrasound images. Additionally, students who participated in US first then anatomical dissection offered insights such as "Performing ultrasound first let me have a visual of the anatomy" and "It helped to understand the positioning of the structures," signifying a strong appreciation for the use of ultrasound as an initial visualization tool. Furthermore, comments like "Doing the ultrasound first then dissection helped prepare me to know what to look for" suggested that beginning with ultrasound may enhance the learning process by providing a foundational concept of the structures' general locations and functions. This approach likely leads to a more informed and self-assured method in the hands-on dissection that follows. Lastly, there was no significant difference observed between the groups in procedural skills, image clarity, anatomical identification, and patient communication during the follow-up US skills assessment.

CONCLUSION: Unfortunately, due to the limited sample size, no statistically significant differences were established between the groups. Nevertheless, within the five US image questions where students were required to identify specific structures, the group that experienced US first achieved a 56.9% accuracy rate, compared to 46% in the group that had anatomical dissection first. Moreover, the US-first group demonstrated a higher overall confidence in their ability to image and identify structures of the femoral triangle on US, according to the Likert scores. These observations suggest a potential positive educational impact, wherein the sequence of ultrasound and dissection may affect different learning dimensions, such as visual-spatial comprehension and procedural assurance. Despite the lack of statistical significance, the qualitative data clearly showcases the instructional value of both sequencing methods, indicating they may provide complementary advantages in educational contexts. The integration of these teaching techniques facilitates a comprehensive learning experience, combining hands-on ultrasound training with image interpretation within a guided, standardized framework, alongside prosector-guided dissections. This methodology allows students to continue to master translatable clinic skills while simultaneously linking foundational anatomy and imaging to improve their spatial understanding.

Healthcare Educator's Art: Efficacy of Use of Clinical Sketches to Convey Medical Concepts

Kayra Cengiz^{*1}, Neoreet Braha^{*1}, Nancy Donohoo^{*1}, Crystal Zhu^{*1}, Jonathan J. Wisco¹, PhD², Brandon Oddo², Cassandra Lee², Noah Siegel², Tony Robinson², Emma Schmidt³

¹Boston University Chobanian & Avedisian School of Medicine

²Boston University College of Fine Arts

^{*}all authors equal contributors

Introduction: Effective communication is an integral aspect of patient-centered care. Clinical illustrations have the potential to significantly aid patients' comprehension of complex medical diagnoses. Improving physician's clinical sketches, with the guidance of a published instructional video that follows a validated rubric, could help with patient comprehension of medical concepts.

Methods: A rubric for evaluating clinical sketches was developed in the previous phase of this study in collaboration with a Boston University Fine Arts student. Key components of the rubric include: visual clarity, layout, hierarchy, sequence and directionality, style, and color. We created an educational video highlighting these components of the rubric.

We recruited four BMC-affiliated physicians to illustrate medical concepts related to their specialty pre and post viewing of the instructional video. We surveyed the physicians on their prior experience with clinical illustrations and to gather feedback on the video. The physician-generated images were then evaluated using the rubric by five individuals holding art and architecture degrees.

Statistical analyses were conducted to quantify the differences in ratings assigned to drawings before and after exposure to the instructional video. We assessed how pre-video and post-video physician-generated images improved comprehension of illustrated medical concepts by randomly presenting them to undergraduate students. Participants took a pre-quiz on the content, saw either a pre-video (A) or post-video (B) image, and then took a post-quiz. The quiz scores were analyzed for differences in performance.

Results: A 16-minute instructional video reinforces the application of the rubric in real-world clinical circumstances by providing examples from previously evaluated drawings. Following the video tutorial, the physicians reported increased motivation to incorporate clinical illustrations in their practice. 75% of respondents indicated time restrictions as the largest barrier to incorporating illustrations in their clinical practice.

Evaluations of five individuals holding art and architecture degrees show a statistically significant difference in the mean aesthetic ratings of physician drawings before and after viewing the instructional video ($t(3) = -7.22$, $p = 0.005$)

Based on the undergraduate student surveys, we conducted paired sample t-tests for each of the eight testing conditions and found that quiz scores improved in all disciplines [DH-A: $t(20) = 5.767$; $p < 0.001$; DH-B: $t(20) = 4.903$; $p < 0.001$; PD-A: $t(22) = 2.237$, $p = 0.018$; SC-A: $t(22) = 4.746$, $p < 0.001$; SC-B: $t(21) = 1.914$, $p = 0.035$; XR-B: $t(22) = 2.113$, $p = 0.023$]. Independent sample t-tests showed higher test score improvement for SC [$t(43) = 1.707$, $p = 0.048$] after viewing the post-tutorial image than when viewing the pre-tutorial image.

Conclusion: Our findings suggest that the instructional video assessed in this study effectively enhances physicians' drawing skills and improves the overall quality of their illustrations. We hope this video will be a useful resource for physicians, enabling better communication of medical information with patients. In the future, incorporating these methods into medical education can be a tool to improve patient-centered treatment by promoting more understandable and approachable communication between physicians and their patients.

Use of Low-Cost Ultrasound Phantom of Neurovascular Structures for Practice of Ultrasound-Guided Clinical Skills as an Adjunct to the Preclinical Curriculum

Michelle Cheng¹, Jonathan Wisco, PhD²

Chobanian & Avedisian SOM¹, Chobanian & Avedisian SOM, Anatomy and Neurobiology²

Purpose: Point of care ultrasound is used for diagnostic and procedural purposes across many medical specialties. The first time medical students encounter these skills is often during clinical rotations. While there are ultrasound phantoms for practicing specific ultrasound-guided procedural skills, these can be expensive, thus inaccessible for many medical schools and students.

Objectives: We previously published on the creation of a femoral triangle ultrasound phantom constructed from readily available materials. In this study, we modified the phantom to simulate a deep vein thrombosis (DVT), intravenous (IV) access, and nerve block and then examined its feasibility for pre-clinical instruction.

Methods: An ultrasound-guided clinical skills session on DVT identification, IV access, and nerve block was developed as an addition to our Ultrasound is For Everyone elective. A self-learning guide of content was provided before the session. We created a low-cost phantom of the femoral triangle neurovasculature based on previously published methods with the following modifications: neurovasculature and fascia layers were created using tofu, balloons, yarn, and parchment paper; and a DVT was simulated by encasing part of a balloon with a straw. A Boston Medical Center emergency medicine resident demonstrated the clinical procedures. Before and after the session, students completed Likert and free response surveys to report their knowledge of ultrasound-guided clinical skills and comfortability and ease of use with phantoms.

Results: Three first-year medical students participated in this small group session and all completed the pre and post-surveys. There was an increase in self-reported confidence in knowledge of ultrasound-guided clinical skills, comfortability using phantoms, and ease of use and construction of phantoms. There was also an increase in students' desire for medical schools to provide phantoms for clinical skills practice. Students reported enjoying learning from a clinician and practicing procedural applications of ultrasound beyond its diagnostic uses.

Conclusions: Given the ease of construction and use, the low-cost phantom has potential to increase access to clinical simulation as an intra- or extra-curricular activity. Instruction by clinicians enhances the learning experience, providing insight on clinical applications of ultrasound that preclinical students will use in clinical practice. We plan to include more subjects for statistical analysis.

Exploring the Silver Linings of the COVID-19 Pandemic in Radiology: PowerPoint Teaching Repository and Evolution of the RAM Club Continue to Enhance the 4th Year Radiology Elective and Educational Innovations

Cassandra Chua, BS, Nicholas Chong, Sriman Narain, Ari Damla, MD, Bindu Setty, MD, Ashley Davidoff, MD

Chobanian & Avedisian SOM, Radiology

Introduction / Background/Purpose: Before the COVID-19 pandemic, our 4th-year radiology elective typically unfolded within the confines of the hospital's reading work station. The pandemic necessitated a reevaluation of our curriculum to accommodate remote learning for this rotation. This transition sparked innovation, leading to the development of an enriched educational environment fostering both radiology proficiency and social interaction.

Methods: Under the revamped program, students were tasked with presenting two PowerPoint projects. One project centered around a clinical case presentation, while the other offered the choice of integrating personal interests with medicine- a Recreation, Art and Medicine (RAM) presentation, or delving into a second clinical case. Monthly RAM meetings were instituted, featuring discussions on a clinical case alongside a RAM presentation.

Results: Since its inception, our program has amassed a collection of 501 cases, including 41 captivating RAM presentations showcasing the diverse talents of our medical students. Notably, the RAM project won the "Shark Tank" competition at the 2023 national Association of University Radiologists (AUR) meeting. Subsequently, at AUR 2024, we showcased our current outcomes and program advancements through four abstracts and a Power Pitch presentation.

Conclusions / Discussion: Continuously evolving, the program now incorporates active participation from our radiology residents and faculty. Academically, it has enabled the creation of a comprehensive library featuring vetted and templated clinical PowerPoints, serving as a valuable educational resource for both residents and students. Moreover, from a social standpoint, the program has fostered deeper connections among participants, contributing to community building and promoting wellness. In our poster presentation, we aim to provide a comprehensive review of the project, supplemented by illustrative examples, underscoring the positive impact of our initiatives.

BEST STUDENT ABSTRACT

A Novel Preclinical Cardiac Ultrasound and Electrocardiography Program and its Impact on Professional Identity Formation

Lindsey A Claus, MS¹, Rutvin Kyada, BA¹, Michelle Cheng¹, Luke Scheuer, MS¹, Martin Liberman, MS¹,
Matthew Kang, BS¹, Jonathan Wisco, PhD¹, Michael Rynkiewicz, PhD², Alex Clos, MD³

*Chobanian & Avedisian SOM, Anatomy and Neurobiology¹, Pharmacology, Physiology and Biophysics²,
and Emergency Medicine³*

Introduction: Recent developments in ultrasound (US) imaging have led to its increased use in both clinical and educational settings, including preclinical medical education. Connectivist learning theory proposes that learning experiences, such as small group US teaching sessions, which include the connection of distinct concepts and collaboration with other learners provide an optimal educational environment. The expansion of preclinical ultrasound teaching sessions to incorporate additional educational modalities therefore provides an opportunity to improve upon preclinical ultrasound learning experiences and to explore the impact of these experiences on preclinical students' professional identity formation and future career planning.

Purpose: In this study, we 1) measure the impact of ultrasound and electrocardiography integration in a preclinical educational session and 2) measure the effect of this session on participants' professional identity formation and career planning.

Methods: During fall 2023, preclinical medical students (n = 55) participated in a one-hour educational experience including small-group cardiac ultrasound teaching, led by second- and fourth-year medical students and faculty, and small-group electrocardiography (EKG) teaching led by faculty. Participants completed pre- and post-surveys composed of 10 paired Likert-style questions focusing on their comfort with US and their future career interests, as well as free response questions focused on the session's integration of US and EKG. A paired t-test was performed to identify differences in pre- and post-survey responses to the Likert-style questions. Participant feedback from subjective survey responses was collated, and grounded theory thematic analysis was performed to identify relevant themes.

Results: The analysis of pre- and post-survey responses demonstrated a significant increase in students' confidence with using the US machine ($p < 0.001$), holding the US probe to perform a scan ($p < 0.001$), and identifying the correct US probe to use for a scan ($p < 0.001$). Responses also demonstrated a significant increase in students' agreement with the statement "I enjoy learning about physics" ($p < 0.001$). In terms of students' future career plans, there was a statistically significant increase in their interest in pursuing a future career in cardiology ($p = 0.036$) radiology ($p = 0.025$), and emergency medicine ($p = 0.016$), but not in cardiac or vascular surgery ($p = 0.151$). Responses to free responses questions focused on the integration of EKG and cardiac US organized around themes relating to the relationship between anatomy and physiology, the relationship between EKG axes and US planes, and the relationship between the basic sciences and clinical sciences, with the majority of respondents reporting this session helped them better understand the connections between these different concepts.

Discussion: This session demonstrates the feasibility of a novel educational session design incorporating cardiac US and electrocardiography teaching for preclinical medical students. Students reported increased confidence with their understanding of both of these domains, and they also described increased enjoyment in learning about physics and interest in the fields of radiology, cardiology, and emergency medicine. Future work is needed to further elucidate the optimal structure for preclinical ultrasound education and to explore the long-term impacts of these learning experiences on participants' ultimate career paths.

CARE Faculty Scholars Program: A National Learning Collaborative to Facilitate Implementation of Addiction Medicine Curricula

Ricardo Cruz, MD, MPH, MA¹, Lindsay Demers, MS, PhD, SPH², Ve Truong³,
Natalie Karter³, Ilana Hardesty, MA, CME², Alexander Walley, MD, MSc, GIM², Jeffery Samet, MD, MA,
MPH, GIM², Daniel Alford, MD, MPH, GIM²

Chobanian & Avedisian SOM, General Internal Medicine¹, Chobanian & Avedisian SOM², No affiliation³

Previously Presented at the Boston Addiction Conference on 3/15/2024

Learning Objectives: Learners will be able to: 1) describe the need for high quality addiction medicine curricula within physician training programs; 2) describe how the CARE Faculty Scholars (CFS) program aims to address this need; and 3) summarize pre-program characteristics of the first cohort of scholars.

Introduction: Education about substance use disorders (SUD) remains inadequate in medical training despite the excessive morbidity and premature mortality caused by SUD. Identifying and managing SUD needs integration into medical trainee curricula reflective of its importance as a mainstream medical problem.

Objective: The objective of the CARE Faculty Scholars (CFS) program is to equip medical school and post-graduate teaching faculty with the tools needed to create, implement, and evaluate addiction medicine curricula through participation in a year-long learning collaborative and completion of an Addiction Medicine Enhancement Project (AMEP).

Description: The CFS program is a competitive national scholarship program for residency and fellowship program/medical school faculty interested in developing and implementing addiction curricula. It consists of an in-person four-day immersion training which covers important advances in the field of addiction presented through lectures, case-based discussions, skills practice sessions, visits to mutual support groups, and small group meetings with individuals in recovery. Each scholar meets with course faculty to develop their AMEP. The program also includes six virtual 90-minute ECHO® Learning Collaborative sessions over 9 months. Each ECHO session includes an interactive session focused on the key principles of developing, implementing, and evaluating curricula. Sessions include two scholars presenting their AMEP progress report highlighting challenges they have encountered; each receives feedback and recommendations from the other scholars and program faculty. The CFS program evaluation includes a pre-program, immediate post-ECHO session and immediate post-program surveys.

Discussion and Summary: The CFS program began in April 2023 and enrolled 10 faculty scholars from 10 institutions and 7 states. Scholars' training included: general internal medicine; family medicine; pediatrics; med-peds; and hepatology. The majority (80%) of the scholars stated that their existing SUD training/curricula at their institution needs improvement and identified lack of faculty time, lack of institutional expertise and other competing priorities as the top barriers. In the pre-survey (likert scale: 1=none; 5=a lot), the mean reported prior experience in developing curricula was 3.2 (SD 1.2); mean level of experience as an educator teaching about SUD was 2.4 (SD 1.2); and mean confidence in developing SUD curricula was 2.6 (SD 1.4). In summary, the first cohort of the CFS program enrolled faculty educators from multiple institutions and specialties with large gaps in personal experience and confidence in developing SUD curricula. The CFS program is designed to address these gaps by providing faculty with the tools to implement SUD curricula through an innovative use of learning collaborative.

The Use of an Escape Room to Approach Student Learning in a Genetic Counseling Training Program

Maya del Rosario, Kathleen Swenson, MS, MPH

GMS, Genetic Counseling

Introduction: The use of gaming strategies is an evidence-based strategy to promote critical thinking and student learning and has been widely used in health professions education. Escape rooms are one of many recent approaches where students become active participants in the classroom through a series of strategic puzzles to apply their learned knowledge in an engaging manner.

Objectives: To support the prenatal genetic curriculum in a master's degree professional training program for genetic counseling, a longitudinal escape room was developed. Students were grouped and tasked to escape from the prenatal genetic clinic through a series of modules. Each module required application of learned knowledge in sequence to apply information across clinical correlations, application of standards of care, determination of differential diagnoses, and application of risk assessment.

Methods: Student knowledge was measured before and after completion of the escape room through a survey. Students evaluated their perceived knowledge on prenatal genetics content before the escape room based on a Likert scale rating. Following completion of the escape room, knowledge was again measured, and feedback on the experience was collected. Data was corroborated using a code number self-selected by the participants to maintain anonymity. IRB approval was not obtained as this was conducted as an assignment for a course.

Results: The escape room included 5 modules and lasted approximately 75 minutes from start to finish. A total of 28 learners participated. Paired t-tests demonstrate a statistically significant increase in knowledge scores collectively across the content addressed in the escape room across 5 of the 6 areas of focus. Evaluation of the experience was overwhelmingly positive with an average rating score of 9.4 on a scale of 10. Open ended responses encouraged the development of additional escape rooms to be created to support student learning.

Conclusions / Discussion: The model of this escape room demonstrates an engaging and interactive manner in which to reinforce material covered across the curriculum. Future research can further investigate the value of escape rooms in health professions graduate education and can be a tool to measure student mastery of content knowledge and competency of learned skills.

Illustration Clinic: Teaching Physicians to Illustrate to Improve Health Literacy

Nancy Donohoo, BA¹, Crystal Zhu¹, Neoreet Braha¹, Kayra Cengiz¹, Brandon Oddo¹, Cassandra Lee¹, Noah Siegel¹, Tony Robinson¹, Emma Schmidt², Jonathan Wisco, PhD³

Chobanian & Avedisian SOM, Medicine¹, Boston University: College of Fine Arts², Chobanian & Avedisian SOM, Anatomy and Neurobiology³

Purpose: Previous studies have investigated the use of clinical illustrations to improve health literacy. Drawing ability varies amongst healthcare professionals and can be difficult to develop without guidance. A video tutorial based on a validated scale was created to assist clinicians in improving the comprehensibility of their clinical illustrations.

Methods: Four physicians of Boston University Chobanian & Avedisian School of Medicine illustrated concepts related to their specialty: disc herniation (DH), Parkinson's disease (PD), sickle cell (SC), and X-ray imaging (XR); watched a video tutorial; and re-illustrated those concepts. For each concept, undergraduate student participants took a pre-quiz on the content, saw either a pre-video (A) or post-video (B) image, and then took a post-quiz. The quiz scores were analyzed for differences in performance.

Results: We conducted paired sample t-tests for each of the eight testing conditions and found that quiz scores improved in all disciplines [DH-A: $t(20) = 5.767$; $p < 0.001$; DH-B: $t(20) = 4.903$; $p < 0.001$; PD-A: $t(22) = 2.237$, $p = 0.018$; SC-A: $t(22) = 4.746$, $p < 0.001$; SC-B: $t(21) = 1.914$, $p = 0.035$; XR-B: $t(22) = 2.113$, $p = 0.023$]. Independent sample t-tests showed higher test score improvement for SC [$t(43) = 1.707$, $p = 0.048$] after viewing the post-tutorial image than when viewing the pre-tutorial image.

Conclusion: Clinical illustrations can enhance patient-provider communication and improve patient understanding across a variety of disciplines. Video tutorials are low-cost educational tools with the potential to improve clinical drawing skills and health literacy. Future studies should recruit both a larger group of physicians to diminish the effect of starting artistic ability and participants with a wider range of health literacy to better elucidate the impact of image quality on understanding.

The starting artistic ability of a physician is a confounding variable and may explain the lack of significant difference in post-test scores between A and B groups.

Critical Thinking in Dental Education: A Content Analysis of Student Evaluations and Feedback

Abeer Elshewehy, BDS, Fuad Tawmeh, DMD, Neal Fleisher, DMD

Goldman School of Dental Medicine: General Dentistry

Previously Presented at the ADEA Annual Exhibition and IADR on 3/11/2024

Introduction: Critical thinking skills are essential for dental professionals to make informed and sound decisions for their patients. These skills enable dental professionals to assess complex situations and identify potential problems that may impact a patient's oral health. Through critical thinking, dental professionals can properly diagnose a case, weigh the pros and cons of different treatment options, evaluate the potential risks and benefits, and choose a predictable treatment for their patients. This process not only leads to better decision-making but also helps to develop effective solutions to complex problems related to dentistry.

Objectives: The purpose of this study was to investigate the effectiveness of the elective course "Current Topics in Dentistry" in promoting critical thinking skills among dental students, to gain a deeper understanding of their experiences and perceptions of taking the course. We hypothesized that students report an increase in their critical thinking skills as a result of taking the course.

Methods: This study used a quantitative and qualitative approach to analyze the anonymous feedback and comments of the students who took the course "Current Topics in Dentistry". This course was designed to use controversies in dentistry as a vehicle to discuss and learn critical thinking skills. The course included a weekly discussion board in which every student was required to post a response to a specific set of questions, and then to critique a classmate's response, using critical thinking concepts, which were robustly explained in depth by the course director and instructors. The data were collected through evaluation forms completed by the students over the years the course has been conducted. The data were analyzed using a content analysis approach, and the book "Critical Thinking" by Richard Paul and Linda Elder was used as a theoretical framework to guide the analysis.

Results: The analysis of the data revealed that the students perceived an increase in their critical thinking skills as a result of taking the course "Current Topics in Dentistry", as evidenced by increased engagement in class discussions, and the ability to analyze complex dental topics, research findings, and scientific data. Out of 184 survey responses, 182 students agreed that the seminar helped with the application of knowledge learned in the classroom. Another 174 students responded that they gained a great deal of knowledge. Many comments included how the students felt liberated with their ways of thinking and that they no longer feel obligated to accept information as presented. Close to 95% of respondents reported feeling more confidence in their thinking process. The students reported that the teaching methods using active learning strategies, such as problem-based learning and topics covered in the course were effective in promoting critical thinking skills.

Conclusions: The results of this study provide a clear perspective in promoting critical thinking skills among dental students, and the importance of using a specific Socratic teaching methods and activities to promote these skills. The course's objectives to equip students with the skills to analyze and evaluate complex dental topics and scientific data and enhance their ability to communicate findings effectively and collaborate with colleagues were achieved. This study contributes to the broader field of education by providing insight into the teaching of critical thinking skills in higher education and provides valuable insights into the development of critical thinking skills in dental education and suggests ways to improve the effectiveness of the curriculum.

Comparative Assessment of Hands-on Mentored Practice versus Video Demonstrations in Enhancing Surgical Suturing Proficiency Among Undergraduate Dental Students

Aysenur Genc, DDS, PhD¹, Jenefer Loveline Arokiyasamy, BDS, DMD¹, Radhika Chigurupati, DMD, MS², Manish Bhagania, BDS, MDS²

Goldman School of Dental Medicine: Advanced Standing Program¹, Goldman School of Dental Medicine, Oral and Maxillofacial Surgery²

Objective: This research aimed to evaluate the effectiveness of two approaches for enhancing surgical suturing proficiency: hands-on mentorship and video tutorials. The study targeted pre-doctoral dental students enrolled at Boston University H. Goldman School of Dentistry (BU GSDM).

Methods: A prospective, non-randomized study enrolled 40 dental students at BU GSDM. The control group received suturing instruction through an expert-narrated video, while the study group received in-person mentoring and practice. Both groups underwent skill assessment through faculty and self-evaluation. Task-specific questionnaires were administered before and after training. Additionally, a survey was conducted to gauge student perceptions of the training protocol. Data were summarized using descriptive statistics, and paired t-test was used for training score comparisons.

Results: Pretest scores for the video group averaged 7.68 (± 1.41), increasing to 9.21 (± 1.03) post-training. The hands-on trained group had pretest scores averaging 7.40 (± 1.09), rising to 8.75 (± 1.01) post-training. Significant improvements were observed in both groups' task scores ($p = 0.00$). Self-evaluation scores (18.15 ± 3.74 in controls and 17.15 ± 2.81 in the study group) were significantly higher than faculty evaluation scores (16.9 ± 2.55 in controls and 15.1 ± 1.74 in the study group) ($p = 0.01$). Faculty evaluation scores were significantly lower in the control group ($p = 0.02$). All students expressed their intent to recommend the hands-on suturing course to their peers, with 87.5% expressing confidence in suturing live patients post-training.

Conclusion: The findings of this study highlight the effectiveness of both hands-on mentorship and video tutorials in improving surgical suturing skills among undergraduate dental students. Notably, the hands-on trained group exhibited significantly higher post-training faculty evaluation scores compared to the video group, suggesting a perceived higher proficiency level among students who underwent hands-on training. These results underscore the importance of integrating hands-on mentorship into dental education curricula to adequately equip students for clinical practice, fostering enhanced confidence and proficiency in surgical suturing techniques.

ID Badge Checklists for Critical Care Resuscitation in the Emergency Department

*Julia E. Isaacson, MD, *Matthew Bui, MD, Alex Clos, MD, Alejandro Aviña-Cadena, MD, Ivan Zvonar, MD, Andrew Mittelman, MD

BMC, Department of Emergency Medicine

**co-first authors*

Introduction/Background: Checklists, protocols, and reference guides have become commonplace in the medical field and are often seen decorating the walls near provider work areas in emergency departments. Such point-of-care materials decrease extraneous cognitive load in order to reduce medical errors and improve patient care in high-risk scenarios. An added benefit of standardization is reduction of biases that affect clinical decision-making.

Purpose/Objectives: The purpose of this Innovation was to create “Just-in-Time” style reference guides that provide easily-accessible, standardized information critical to the care of our sickest patients. The reference cards, which can be easily attached to an ID badge, include common medications for emergent conditions, the reversible causes of cardiac arrest, thoracotomy protocols, a trauma activation pre-arrival checklist, and a QR code for brief procedural review. Importantly, the cards can be easily customized to provide institution-specific content.

Methods: Employing a combination of focus groups and Delphi modeling, we identified the “highest yield” reference information for various types of critical care resuscitation, a multidisciplinary effort involving emergency medicine and trauma surgery providers, nurses, and pharmacists. To capitalize on the “Just-in-Time” model, this information was algorithmically arranged on ID badge cards for convenient access. We created two double-sided badge cards, one designed to be referenced for medical resuscitations and procedures, and the other for traumatic resuscitations and airway management. The first included emergency drug dosages for critical conditions and a QR code that directs to a department-run website for video and text review of pertinent emergency department procedures. The second contained an emergency airway management checklist, a trauma activation pre-arrival checklist in the style of a three-step “zero point survey,” and an institution-specific thoracotomy protocol. We then distributed the cards to our department’s providers and conducted a two month post-hoc survey to assess utilization.

Findings/Results: Two months after badge distribution, survey results demonstrated that 92% of recipient providers referenced their ID badge cards during a critical care resuscitation. One hundred percent of users reported that they found the reference materials helpful.

Conclusions/Discussion: The treatment of critically ill patients requires synthesis of complex information, including best practice guidelines, hospital protocols, and medication management. Such information, which could be well-outlined in a reference guide, is not always readily available to providers in an easy-to-access manner. Reference guides decrease extraneous cognitive load and thus improve clinical decision-making capacity for providers, while simultaneously ensuring equitable care by reducing known biases. Through this innovation, we produced a convenient, informative, and standardized guide to help providers care for critically ill patients. The two-month post-distribution survey demonstrated that the vast majority of providers referenced the cards, and all users who referenced them found them to be useful. Future surveys and focus groups will inform iteration of the cards to improve usability and helpfulness. Further, we intend to evaluate if and how this innovation reduces clinically-relevant biases in critical care and influences resuscitation time metrics.

Kinesthetic Learning Improves Student Assessment Outcomes in a Musculoskeletal Gross Anatomy Lesson

Grace Kleckler

GMS, Anatomy and Neurobiology

Introduction: At Boston University Chobanian and Avedisian School of Medicine, graduate students in the department of anatomy and neurobiology take the Gross Anatomy course consisting of a lecture and lab portions. While lab provides hands-on learning for identifying structures, other areas of knowledge such as functions, specifically of lower extremity muscles, does not have a hands-on learning experience. In order to enhance learning and cater to multiple learning styles, an interactive lecture was created to aid in the understanding of the different muscle movements.

Purpose: To provide an active learning session that supplements a basic musculoskeletal anatomy lecture with corresponding demonstrations on joint movements. Graduate students in the lecture portion of gross anatomy course spend a great amount of time learning about the basic anatomy of the muscles, specifically the origins, attachments, actions, and innervations. However, most of the time these lessons are not accompanied with hands-on learning and knowledge of the muscle actions is not applied to physical movements of the human body. Ex: In class you may hear a professor say “flexion of the knee” or see it written on the slide or an image of knee flexion on the side, but one might not necessarily know what that will look/feel like in an applied context, such as during a workout. This type of knowledge is especially important for students that may be studying to treat patients. Pairing muscle actions to physical movements is important to understand how our knowledge from class translates into real world experiences.

Methods: This lesson used a combination of teaching methods; interactive lecture, hands-on kinesthetic learning, and team-based learning to enhance understanding. In the lecture, muscles of the lower-extremity were separated by compartment to first give a brief overview of muscles, movements, and their innervations. Simultaneously, hands-on learning included student use of elastic bands on skeletons for the visualization of muscle movements of the lower extremity. Team-based learning included giving students images of the concentric movement of gym exercises in which students worked together to determine what muscles were being used. A pre- and post- assessment was used to determine efficacy of the lesson.

Results: A total of 20 students participated in this lesson. Of participating students, 71% of students indicated that this lesson aided in their learning and 87% of students indicated that their knowledge of subject material increased after the lesson. Pre- and post- assessment quizzes also revealed that the number of correct responses increased by an average of 16.8% per question.

Conclusion: Supplemental instruction in the form of team-based problem solving and kinesthetic learning improves student learning outcomes.

My Radiology Diary: A Digital Diary Tool for Self-Directed Medical Student Radiology Education

David Law, BS, Cassandra Chua, BS, Andrew Tsao, BS, Matthew Kang, BS, Jake Barrett, MD, William Moore, MD, Priscilla Slanetz, MD, MPH Ashley Davidoff, MD

Chobanian & Avedisian SOM, Radiology at BMC and BUCASM

Previously Presented at AUR 72nd Annual Meeting on 4/3/2024

Introduction: Radiology's clinical role is not sufficiently addressed in the pre-clinical curriculum of most medical schools. Students are seldom educated to understand the indications, clinical integration and limitations of medical imaging in combination with the clinical knowledge they acquire during medical school. In addition, there is a need for educational tools in medical education centered around student-driven learning and customization that are capable of consolidating accumulated knowledge in one place.

Objectives: To address this educational gap, we created a self-directed learning platform to allow students to grow their radiological and clinical knowledge throughout their medical journey. This exhibit outlines the development of the resource, MyRadiologyDiary, and provides insight into the various components and their interplay with medical student education over the 4-years and beyond.

Project: Using a web-based platform, we created a personalized diary assigning a page to each of the subject headings found in the national medical student curriculum developed by AMSER and AUR, as well as within the list of topics medical students are expected to understand for clerkships and USMLE board/shelf exams. Each page has links to relevant resources giving students the ability to both grow their knowledge and chart their experience. The subject headings are divided into preclinical and clinical categories. Links to our department resources, resources created by AMSER, and third-party exam preparation services popular among students augment the self-learning tools that span the curricular requirements.

Links to gamifying projects created in our department, promote curiosity and enhance skills required in imaging diagnosis. Examples include "Sherlock Holmes and Radiology", "Art in Radiology", and "Where is Waldo?"

The concept of a central repository allows efficient communication with the department, and fellow students. As new programs are introduced these are easily distributed.

The system is scalable, enabling collaboration with other radiology institutions and medical schools with potential for further growth.

Conclusion: Given the lack of a centralized editable and searchable resources for medical student education in radiology, we provide the infrastructure that can help medical students obtain increased exposure to the field of radiology as well as serve as a tool for self-learning overall. The personal diary that each student develops can serve as a career-long tool that can be updated with new knowledge and newly developed programs.

BEST RESIDENT & FELLOW ABSTRACT

Leveraging Virtual Reality (VR) for Interprofessional Competency Development to Address Social Drivers of Health (SDH)

Joo H Lee, MD¹, Stacey Zawacki, DrPH, RDN, Heather Miselis, MD, MPH, Linda Sprague Martinez, PhD, Aliza Stern, MMSc, PA-C, Rachel Thompson, MD, Maria Emilia Bianco Galindez, PhD, MSW, Pablo Buitron de la Vega, MD, MSc

Chobanian & Avedisian SOM, Family Medicine¹

Introduction: Development of interprofessional collaborative skills is crucial in tackling SDH yet opportunities remain limited among health professional students (HPS). VR simulated learning environments (SLE) are feasible and acceptable tools for fostering interprofessional education (IPE) opportunities. The purpose of this study was to examine the feasibility and effectiveness of VR SLE that incorporated SDH content and interprofessional competencies.

Methods: A VR SLE in-hospital scenario was developed to promote interprofessional collaboration in identifying and addressing SDH in a pediatric patient with weight faltering. Each session involved faculty members from each of the participating program; one member role-played the patient's parent, while the others provided feedback. The interprofessional team included learners from programs of social work, nutrition, and medicine at our university. The objective was to delve into the family's SDH and devise a collaborative care plan to address the identified needs. Pre- and post-simulation surveys were conducted, collecting Likert scale responses on the Collaborative Competencies Attainment Survey (ICCAS) and confidence levels in addressing SDH. A paired t-test was used.

Findings: A total of 48 simulations were conducted from May 2022 to May 2023. Among the completed pre (n=133) and post (n=55) surveys, there were 51 matching IDs. Students had increased confidence in their ability to discuss, identify and share resources related to SDH ($p < 0.001$). The mean cumulative ICCAS score in the pre survey was 105.5 and the mean for post survey was 115.1, with a significant mean difference of 9.6 ($t=4.73$, $p < 0.001$). There was a statistically significant improvement in 19 of 20 ICCAS items. The change in ability to "express ideas and concerns without being judgmental" was not statistically significant ($p = 0.08$). Accounting for previous IPE experience, there was a significant increase in the sum of the ICCAS score between the pre (mean = 107.5, SD= 15.4) and post survey (mean = 117.0, SD= 19.1); $t=5.24$, $p < 0.001$.

Conclusion: The VR SLE was feasible and effective in enhancing IPE competencies, irrespective of the students' prior IPE experiences. It also successfully overcame geographical boundaries, aiding multiple campuses to participate. However, the required role of the faculty member may present a scalability challenge. As a future direction, we propose a randomized-controlled study to compare a faculty-led role to a pre-screened, standardized AI-driven non-player character (NPC) in maintaining the quality of the simulation. This could allow a more scalable and efficient VR SLE model. Development of interprofessional collaborative skills is crucial in tackling SDH yet opportunities remain limited among health professional students (HPS). VR simulated learning environments (SLE) are feasible and acceptable tools for fostering interprofessional education (IPE) opportunities. The purpose of this study was to examine the feasibility and effectiveness of VR SLE that incorporated SDH content and interprofessional competencies.

Shared Wisdom: Students and Patients Co-Creating Self-Management Plans

*Joshua Lepson, BS, *Nihita Santebennur, BA, Heather Miselis, MD, MPH

Chobanian & Avedisian SOM, Family Medicine

**co-first authors*

Introduction: Despite the high prevalence of chronic disease in medicine, the preclinical years of medical school often neglect formalized inpatient centered education on chronic illness and barriers to self-management. Students learn essential skills such as motivational interviewing, SMART goal development, and teach-back, but rarely have the chance to practice these skills in a non-simulated environment.

Early exposure to the clinical environment enhances student understanding and empathy towards chronic illness while boosting patient knowledge in self-care management^{1,2}. Given that heart failure (HF) is the leading cause of preventable hospitalization in the US and requires extensive self-care, training students in patient-centered counseling can improve health outcomes and student comfort, knowledge, and empathy when working with patients with chronic conditions.

Methods: "Care Coaches for Chronic Conditions (4C's)" is the first student enrichment program that addresses the need for enhanced patient-centered education and motivational interviewing skills among medical students in the context of HF management. The program includes a comprehensive training period utilizing mock cases and presentations to teach fundamental aspects of HF and self-management, and guides students through teach-back techniques, motivational interviewing, and SMART goal development. Paired first and second year medical students provide person-centered education in two 30-minute sessions to patients admitted for HF at BMC. The first patient session uses a strengths-based approach to identify gaps in health knowledge essential to HF self-management. The second session focuses on SMART goal development, resource distribution, and motivational interviewing. Both sessions emphasize warning signs from the American Heart Association's "Self Check Plan for HF Management" using the teach-back technique.

Results: In our inaugural year, a total, 5 M1s and 4 M2s engaged in the clinical experience, with a noted 100% retention rate of M1s transitioning to M2s with 4C's. Ten patients were seen by the medical student team from October 2023 to February 2024. Of those patients approached, all engaged in the education intervention. Five selected further information on diet, two chose exercise, two for fluid restriction, and one focused on alcohol cessation. Student reflections on the 4C's experience demonstrated growth in initiating meaningful dialogue around HF warning signs and identifying patient barriers to self-management.

Students noted limitations in their ability to address needs of patients with complex social determinants of health. Common themes from student reflections working with unhoused patients included an inability to control meal contents and limited access to scales for daily weights. Additionally, identifying culturally competent resources and establishing a unifying self-management goal for patients with multiple chronic conditions proved challenging.

Future directions: A critical step in implementing any novel program is evaluating its effectiveness. IRB approval is in process to evaluate clinical efficacy and impact on medical student education. Surveys will assess student knowledge of HF, comfort level, and perceived confidence in leading motivational interviewing. Data derived from these evaluations will guide future program development, training, and expansion, ultimately creating a comprehensive education experience for students while simultaneously improving patient outcomes.

References:

1. Collins L, Arenson C, Rattner S, Wallock S, Umland E, Hewston LA, Borden C, Antony R, Necky J. The Health Mentors Program: A Longitudinal Chronic Illness Mentorship Program. *MedEdPORTAL*. 2009;5:4062. https://doi.org/10.15766/mep_2374-8265.4062
2. De La Rosa C, Soriano R, Parkas V, Naderi N. Understanding Experiences of Chronic Illness from the Patient Perspective. *MedEdPORTAL*. 2014;10:9688. https://doi.org/10.15766/mep_2374-8265.9688

Evaluation of a Continuing Medical Education Program of Domiciliary Dental Care for Medically Compromised Patients

Kevin Ma, DDS

Goldman School of Dental Medicine, Orthodontics and Dentofacial Orthopedics

Introduction: Domiciliary dental care (DDC) is a specialized dental service provided at patients' residences, especially for medically compromised patients.

Purpose: To provoke awareness of DDC in healthcare professionals, a series of continuing medical education (CME) lessons on DDC for dentists and para-dental healthcare professionals was organized.

Methods: The CME lessons consisted of four 8-hour courses that included hands-on sessions provided in each year. Main topics included physiological weakness of medically compromised patients with long term illness or dysphagia, and practical methods of oral health screening and oral care. Demographics, information on practicing experience, and satisfaction rate towards the courses, were recorded for all attendees through pre- and post-lesson surveys.

Results: A total of 159 surveys were collected. The rate of occupation including dentists, nurses, dental assistants, and nursing aides were 37.10% (n=59), 42.13% (n=67), 7.55% (n=12), and 13.20% (n=21), respectively. Additionally, the overall satisfaction rate of the courses was "very satisfied", with dentists, nurses, dental assistants, and nursing aides accounting for 28.30%, 26.41%, 5.66%, and 6.28% among all participants, respectively. Moreover, 30% and 66% of all the attendants were satisfied and very satisfied with the courses.

Discussion: CME modules may promote DDC and improve the accessibility to dental care for medically compromised patients. Through educational efforts of the public and private sectors, an increasing number of healthcare professionals participating in DDC has been observed, including both those in hospitals and those who were primary care practitioners.

Flipping Techniques in Dental Education: A Systematic Review using the Kirkpatrick Model

Kevin Ma, DDS

Goldman School of Dental Medicine, Orthodontics and Dentofacial Orthopedics

Background: The flipped classroom (FC) approach allows students to review course materials before class and engage in interactive activities during class time.

Objective: This systematic review examined the effectiveness of the FC model in dental education.

Methods: Observational studies or randomized trials that assessed the satisfaction, awareness, performance, effectiveness, and confidence of participants engaged in FC-facilitated pre-clinical, clinical, or continuing dental education were retrieved. Demographics, study design, contents and lengths of the educational intervention, and evaluation methods were recorded. Risk of bias assessment was done.

Results: 25 eligible studies were identified. The sample sizes ranged from 21 to 617 participants. Most studies were observational studies, while two were randomized trials. Evaluation methods included quizzes, questionnaires, and final exams, with some studies utilizing pre-test and post-test evaluations. The intervention duration across the studies ranged from 60 minutes to 2 years. In this study, the effectiveness of the flipped classroom approach was compared to that of traditional teaching methods in terms of student academic performance and feedback.

Conclusion: FC is a promising approach in dental education, offering personalized learning opportunities and optimizing class time for interactive activities. Participants indicated a preference for Flipped Classroom (FC) as a potential replacement for traditional dental education methods. This preference was based on observed higher levels of knowledge retention and acquisition among the students. Rigorous research with long-term follow-ups is needed to assess the impact on students' retention of information and career development.

Teaching About Geographic Variation in Healthcare and Shared Decision Making for MAT Discussions in the Community Behavioural Health Center at BMC

William-Bernard Reid-Varley

Chobanian & Avedisian SOM, Psychiatry

Background: Alcohol use disorder (AUD) and opioid use disorder (OUD) are significant drivers of healthcare spending, excess mortality, and losses in economic productivity in the United States. Eleven percent of adults in the United States suffer from alcohol use disorder¹ and overuse or misuse of alcohol is a cause of 10% of deaths annually, an average of twenty-nine years of life lost per decedent, and \$249 billion in lost productivity per year¹. Additionally, two and a half million adults (nearly one percent of the United States population) suffer from active opioid use disorder² and more than seventy-five percent of the 107,000 overdose deaths in the United States in 2021 involved an opioid³. However, research indicates that only 1.1% of patients with alcohol use disorder¹ and 22% of patients with opioid use disorder⁴ receive appropriate and effective FDA-approved medication-assisted treatment (MAT). Certain populations are even more likely to not receive appropriate treatment for alcohol and opioid use disorder, including persons of colour, women, unemployed persons, and those living in rural areas^{5,6}. Many of the patients who access psychiatric care at the Boston Medical Center Community Behavioural Health Center (CBHC) suffer from alcohol and/or opioid use disorder and are members of groups with the poorest access to MAT. It is well-known that lack of provider knowledge and comfort with prescribing MAT is a significant barrier to increasing the number of patients with AUD or OUD receiving FDA-approved medication treatment⁵ in clinics across the country. Improving provider knowledge and comfort with prescribing, and engaging patients in shared decision making regarding, MAT is therefore expected to significantly improve treatment rates for AUD and OUD, especially among patients at highest risk for lack of access to care.

Purpose: The purpose of this project is improve CBHC prescribers' knowledge and comfort with prescribing, and engaging patients in shared decision making discussions regarding, MAT for alcohol use disorder and opioid use disorder.

Hypothesis: It is hypothesised that implementation of these modules will increase providers' knowledge and confidence in their ability to prescribe MAT and increase patients' utilisation of appropriate and effective medications for treatment of AUD and OUD.

Methods: Self-guided learning modules on FDA-approved medications for AUD and OUD and shared decision making discussions regarding these treatment options will be disseminated to the MD and NP providers in the Community Behavioural Healthcare Center (CBHC) at Boston Medical Center from July 1st, 2024 to October 1st, 2024. Providers' knowledge regarding information taught in the learning modules will be assessed before and after completion of the intervention. I will be available during these three months as needed to answer questions regarding information on MAT and shared decision making discussed in the modules. Prescribers will be surveyed one-month post completion of the intervention to assess ways in which the modules affected their MAT prescribing practices and utilisation of MAT among their patients.

Results: The modules are still under development and application for IRB-exempt status is still in process so no results yet available.

Development of a Case/Problem-Based and Teamwork-Focused Applied Physiology Course to Graduate Students Planning to Apply to Dental School

Christopher M. Schonhoff, PhD¹, Marisol Lopez, PhD¹, William Lehman, PhD¹, Aaron Young, PhD¹,
Theresa A. Davies, PhD²

GMS, Pharmacology, Physiology, and Biophysics¹, Oral Health Sciences²

Previously Presented at the American Physiological Society Summit on 4/6/2024

The Master of Science in Oral Health Sciences (OHS) at Boston University Chobanian & Avedisian School of Medicine is explicitly designed for students who wish to improve their academic preparedness for dental school admission. Oral Health Sciences students take some courses, including the first-year Dental Physiology course, alongside dental students at Boston University Henry M. Goldman School of Dental Medicine (GSDM). Since students in the OHS program often struggle in the largely lecture-based Dental Physiology course, we developed a case/problem-based and teamwork-focused Applied Physiology course that ran parallel to the Dental Physiology course in the fall of 2023. The primary goal of the Applied Physiology course is to provide additional instruction and academic support and to present course material in a team-based learning mode for the OHS students. We hypothesized this approach to learning physiology would help to improve student mastery of physiology content critical to their future success. The objective of the current study was to assess the effectiveness of the new Applied Physiology course in enhancing OHS students' motivation and academic performance in the Dental Human Physiology course. We are evaluating the benefits of this course by comparing Dental Physiology final grades and individual exam grades between dental students and OHS students. In addition, we are comparing course performance for OHS students from previous class years who did not take the Applied Physiology course against students from the current academic year who took the course. Our preliminary results indicate students who took the Applied Physiology course in the fall of 2023 performed better in the Dental Physiology course than last year's OHS students. The mean grade for Dental and OHS students in Dental Physiology in the fall of 2023 was 82.3% +/- 12.3% and 80.3% +/- 13.9% respectively. In contrast, the mean grades for Dental students in the fall of 2022 was 82.7% +/- 8%, while OHS students' mean was much lower at 74.7% +/- 11%. Analysis and comparisons for individual course exams for the dental and OHS students are ongoing. In addition, analysis of a validated survey containing Likert-style questions to quantify how the new course enhances motivation, engagement, and perceived benefits of student learning is underway. Our results indicate that additional team and case/problem-based support can improve academic performance for students hoping to gain admission to Dental School.

Examination of a Student-Run Initiative to Improve Equity in Adolescent Health Care and Complement Medical School and Public Health Curricula

Yash V. Shroff, BA¹, Rutva H. Bhatt, BA¹, Ruhi Patil, BS¹, Clare A. Westerman, BA¹, Neha Gogineni, BS¹, Alina Khan, BA, Haley Urbach, MD³, Rekha Chandra, MD³, Rachel W. Thompson, MD³

¹ *Chobanian & Avedisian SOM*, ²*SPH*, ³*Chobanian & Avedisian SOM, Pediatrics*

Intro/Background: There has been a recent movement to improve the integration of social drivers of health (SDoH) training into preclinical medical education. Prior research has shown that, in spite of training in recognition of SDoH, preclinical students lack confidence in addressing vital components of a patient's social history, particularly sexual health and substance use. Partners in Equity and Empowerment through Resources and Support (PEERS) is a service-learning experience at the Boston University Chobanian & Avedisian School of Medicine that addresses these learning gaps. Through the program, PEERS volunteers are trained to screen adolescent patients for high-risk behaviors (e.g. unhealthy sexual practices and substance use disorders) and utilize motivational interviewing methods to provide supportive education and counseling. This learning is translated into practice through direct service in Boston Medical Center's Pediatric Emergency Department, where volunteers engage with adolescent patients to build connections, identify pertinent needs, and provide appropriate resources for both unmet health needs and resource insecurity including, but not limited to, substance use, mental health, contraceptive care, food insecurity, housing needs, access to education, and employment services. In addition, PEERS engages students in further SDoH training and self-reflection via monthly expert-led didactic sessions and case study discussions, each focused on a unique determinant of health.

Purpose/Objectives: The purpose of this project was two-fold:

To provide evidence of a model of experiential service-learning enrichment integrated into medical and public health student education.

To quantify and describe the impact of a student-led service-learning experience on improving medical and public health student education and proficiency in screening and counseling adolescent patients on sensitive SDoH topics.

Methods: The PEERS program involves the following framework facilitating graduated autonomy: a) Orientation sessions, introducing preclinical students to SDoH and the Brief Negotiated Interview (BNI); b) Expert-led didactic sessions covering core adolescent-focused topics including substance use, mental health, adolescent development, and reproductive health; c) Mentored shifts, observing and practicing screening and counseling with a PEERS leader; and d) Twice-monthly shifts at BMC PED that include screening, BNI, counseling, and connecting patients with desired resources.

To evaluate the impact of the program, a survey was administered to PEERS members at initial orientation and after 2 semesters of participation in the program. The survey included questions regarding demographics, participant's prior experience with SDoH screening/counseling, and students' comfort with interviewing and counseling patients about substance use and sexual history using trauma-informed language. The results of the survey were analyzed to identify trends and key areas of change after participation in the program.

Results: In total, 37 students completed the initial survey, and 11 students completed the one-year follow-up survey. Prior to joining PEERS, 92% of participants had never volunteered with a medical screening or counseling program. With regard to addressing substance use in adolescent patients, 65% of students were comfortable taking a substance use history, 43% were comfortable with counseling, and 17% were comfortable with applying harm reduction strategies before participating in PEERS. After participation, 90% were comfortable taking a history, 63% were comfortable counseling, and 60% were comfortable applying harm reduction strategies. With regard to addressing sexual health in adolescent patients, 59.5% were comfortable taking a sexual health history, and 56.75% were comfortable counseling patients about sexual

health practices before participating in PEERS. After participation, 90% were comfortable taking a sexual health history, and 73% were comfortable counseling.

Conclusions: The results suggest that, in the process of advancing a mission to address inequities in adolescent healthcare, the PEERS program provides a novel experiential service-learning opportunity for the majority of medical and public health student participants. Furthermore, the descriptive data supports the benefit of PEERS training, volunteer shifts, and SDoH didactic sessions on improving students' comfort with not only obtaining patients' substance use and sexual histories but also providing appropriate counseling - a previously identified gap in the clinical skills of public health students and preclinical medical school students. These findings underscore the importance of increased backing from medical/graduate schools for initiatives like PEERS and similar organizations, as well as the necessity for additional exploration into the diverse benefits that service-learning groups such as PEERS can offer.

Of note, there were some factors limiting the results of the investigation. The program faced attrition of active participants, diminishing the statistical power of pre-survey and post-survey comparisons. Additionally, Boston University Chobanian & Avedisian School of Medicine's preclinical curriculum includes obtaining a social history within a controlled setting and a theoretical introduction to counseling and harm reduction strategies. Future investigations will elucidate barriers contributing to attrition from the program and collect further qualitative data about the unique skills and experiences that the PEERS program provides to participants.

Factors that Impact How Gender and Sexual Diversity are Navigated in Medical Curricula

*Shelby Spohn¹, *Khoa Duong, MD, MPH, MHPE², Peyton Williamson¹, Hayden Guss¹,
Ann Zumwalt, PhD³

*Chobanian & Avedisian SOM, Student¹, McGill University: Institute of Health Sciences Education²,
Chobanian & Avedisian SOM, Anatomy and Neurobiology³*

**co-first authors*

Previously Presented at the LGBTQ+ Health Workforce Conference on 5/4/2024

Background: Academic medical centers (AMCs) are uniquely positioned to influence the future of medicine through education, research, and clinical care. AMCs have the potential to improve healthcare disparities by ensuring trainees are taught how to care for gender and sexually diverse (GSD) patients competently and respectfully. However, this ideal is challenged by the fact that many clinical and medical educator faculty report uncertainties about how to navigate topics related to diversity in gender and sexual orientation, which can lead to these topics being avoided, inadequately addressed, or poorly modeled in teaching.

Purpose: This study aims to explore how faculty and students perceive current medical educator practices related to GSD topics, with a focus on understanding barriers and opportunities in the clinical phase of a medical curriculum.

Methods: We conducted 4 focus groups with third- and fourth-year medical students (N=17) and 7 interviews with faculty who teach in the preclerkship (N=3), clerkship (N=3), or both phases of the curriculum (N=1) at Boston University Chobanian & Avedisian School of Medicine. We employed constructivist inductive thematic analysis to explore the transcribed data.

Results: We found 5 themes about faculty teaching of GSD topics: (1) Curriculum discontinuity exists and impacts learners; (2) Structural factors impact inclusion of GSD-relevant topics (3) GSD inclusion happens through various modalities; (4) Perceived importance of teaching GSD topics is tied to clinical relevance and empathy. (5) Faculty attitudes and comfort impacts teaching behaviors. Educator discomfort was explained by participants as a fear of making mistakes in a professional context and linked to avoidance of GSD topics in teaching. Faculty comfort was linked to personal experience with GSD people, having had previous training, and/or viewing mistakes as opportunities for learning (growth mindset). Students appreciated good faith efforts made by faculty and expressed a desire for intentional and continuous teaching on how to provide appropriate care for marginalized populations.

Discussion: Most clinical clerkships provide opportunity to use inclusive language and perspectives, though many faculty do not recognize these opportunities. Support for educator faculty development is essential for ensuring that the medical curricula utilize language, perspectives, and topics that acknowledge and are inclusive of diversity in gender and sexual orientation.

Professionalism: A Tool for Its Summative Assessment

Dan M. Tzizik, MPAS, MPH, PA-C, Susan White, MD, Melissa Dipetrillo, MD, John Weinstein, PhD, MS, Robert O'Brien, DrPH, MHS, PA-C, Aliza Stern, MMSC, PA-C, Michael Smith, MS, PA-C, Angela Reffel, MHP, PA-C

GMS, Physician Assistant Program

Introduction: Professionalism is a quality of ultimate import in medical practice. Its presence can facilitate efficacious patient care and effective intra- and interprofessional dynamics. Its presence, and hence, its measurement, has been historically difficult to gauge due to factors including a variable definition, shifting components due, in part, to fluid social mores, and its subjective nature which resists quantification and objectivity. However, its importance cannot be overstated, and it is beholden on the Physician Assistant educator to not only instill these qualities into their students, but verify prior to their graduation and certification, that they practice professionally.

Purpose: The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) standard B4.03e requires that Physician Assistant (PA) programs conduct and document a summative evaluation of each student including professional behaviors and our program lacked a clear process for documentation that we meet the standard.¹ The process of creating a summative professional assessment and document is outlined with data from the class of 2023.

Objectives: Upon completion, participants will be able to: 1. List the components of professional behaviors for a summative assessment. 2. Determine how data from both didactic and clinical phases may be used to document professionalism. 3. Create a document of the assessment of summative professional behaviors.

Methods: Interpersonal and Communication Skills, Patient Care and Professionalism were chosen from the list of program competencies as they related most directly to professionalism. Data sources included the Master Interview Rating Scale (MIRS), which is used in each of the stations of the summative OSCE (Objective Structured Clinical Examination), and preceptor evaluations of the student (PES) from clerkships.² Each of the three assessment areas were matched with data from either the MIRS or PES. A 5-point Likert scale was used to assess each competency.

Means and medians were determined for each MIRS element on the summative OSCE over the six stations and for data from the PES of the nine required rotations. A master grading table which correlated MIRS and PES scores to determine if the student met the professionalism competency was developed. For each competency, notes from the didactic and clinical phases were added to capture qualitative data.

Findings/Results: The tool was first applied to the class of 2023 with 25 students. Means and medians were determined for each targeted program competency and aggregated. The mean was 4.5 (SD 0.18) with a range of 4-4.75 while the range of the 25 student medians was 4.25-5 with 3 on the Likert scale representing Average, meets expectations and improving. Thus, these results indicate that all 25 students were above average (4 on the scale) to outstanding (5 on the scale).

Discussion: A lack of professionalism has been associated with higher odds of a disciplinary action by licensing boards for both PA and medical students post-graduation.^{3, 4} Graduation without assessment of professionalism can impair the program's reputation and also potentially affect accreditation. The Professionalism Tool provided documentation of a summative assessment of professional behaviors is also required by Standard B4.03e and our students' compliance was verified.¹ Further, it will provide

individual data for the program which will be helpful for letters of recommendation for graduates and licensure/credentialling.

Our current data is heavily weighted towards clinical phase data. A curriculum change for the class of 2026 will provide the program with team-based didactic learning evaluations which could be added to the summative evaluation. Additionally, a formative OSCE in the didactic year could provide additional objective MIRS data. Finally, small class size could hamper analysis however validation could be attained by investigating professional behavior in practice post-graduation.

Conclusion: We present a tool to objectively and summatively verify whether a graduating student possesses and utilizes professionalism across the academic span of didactic through clinical training. Further, this tool can delineate the magnitude of the different constituents of professionalism and, therefore, create the opportunity to more personalize remediation if that is eventually needed. The tool with modifications could be used to document professionalism in other health science professions.

References:

1. Accreditation Review Commissions on Education for the Physician Assistant. Accreditation Standards for Physician Assistant Education, Fifth Edition. Published September 2023. Accessed February 19, 2024. <https://www.arc-pa.org/wp-content/uploads/2023/10/Standards-5th-Ed-September-2023.pdf>.
2. Baldwin JD, Cox J, Wu ZH, Kenny A, Angus S. Delivery and measurement of high-value care in standardized patient encounters. *J Grad Med Educ*. 2017;9(5):645–649. doi:10.4300/JGME-D-17-00016.1
3. Barry CL, Coombs J, Buchs S, Kim S, Grant T, Henry T, Parente J, Spackman J. Professionalism in physician assistant education as a predictor of future licensing board disciplinary actions. *J. Physician Assist. Educ*. 2023;34(4):p 278-282. doi: 10.1097/JPA.0000000000000515
4. Papadakis MA, Hodgson CS, Teherani A, Kohatsu N. Unprofessional behavior in medical school Is associated with subsequent disciplinary action by a state medical board. *Acad. Med*. 2004;79(3):p 244-249. doi: 10.1097/00001888-200403000-00011.

Safer Stimulant Use: Harm Reduction Curriculum for Emergency Medicine (EM) Residents and Faculty

Alexa Van Besien, MD¹, Karrin Weisenthal, MD², Laura Welsh, MD², Samantha Johnson, BA,
Joseph Shay

BMC, Emergency Medicine¹; Chobanian & Avedisian SOM, Emergency Medicine²

Previously Presented at the College of Residency Directors

Intro/Background: Concurrent with the opioid epidemic, a significant rise in stimulant-related Emergency Department (ED) utilization associated with increased morbidity and mortality. Abstinence counseling is insufficient as many patients who use stimulants (PWUS) are unable or unwilling to stop using, and there are no FDA-approved medications for stimulant use disorder. Employing harm reduction techniques in the ED can improve the health and safety of PWUS and reduce mortality rates, but no formal curricula exist.

Purpose and Objectives: To improve EM physicians ability to utilize harm reduction principles and strategies in the care of PWUS. This innovative curricula sought to increase physicians knowledge of stimulants, stimulant use patterns and withdrawal syndrome, and enhance physician comfort in discussing harm reduction strategies. The need for this content was established during a parallel curriculum addressing opioid use at the same medical center in which knowledge gaps on stimulant use were identified.

Methods: A two-hour workshop was administered to 28 EM learners including faculty and residents. This consisted of a 30-min didactic and hands-on demonstration of safer-smoking supplies followed by small group structured case discussion highlighting common harm reduction intervention opportunities in the ED. These cases allowed for knowledge application from the didactic session. Faculty with advanced training in medical education and addiction medicine designed content and created the facilitator guide provided to the small group leaders.

Outcomes: This curriculum was evaluated using a pre/post satisfaction survey that was completed by 23 of 28 participants. All found the curriculum to be effective/highly effective and 90% reported being likely or very likely to incorporate harm-reduction techniques in their practice. Additionally, all participants reported increased confidence in counseling on harm reduction techniques for patients who smoke or inhale/sniff stimulants and all were better able to discuss unique considerations of acute stimulant withdrawal.

Summary: We created a successful stimulant-focused harm-reduction curriculum for both ED residents and faculty. Given that discomfort with the overall content is a large barrier to engaging in harm reduction techniques, we focused on developing content knowledge to improve participants self-efficacy. Thus, we targeted explaining the binge-pattern of stimulant use that can lead to overamping, demonstrating safer-smoking techniques and safer-ways to inject stimulants, and highlighted the importance of fentanyl test strips for PWUS due to the high rates of fentanyl-contaminated stimulants. This curriculum can be distributed widely and utilized in various environments including rural and suburban residency programs, continued medical education for attending physicians, and even nursing or physician assistant programs to better educated EM providers on harm reduction techniques when managing PWUS.

BEST FACULTY & STAFF ABSTRACT

CASPer Situational Judgement Test Score as a Predictor of Success

John R Weinstein, PhD, MS, Robert O'Brien, MPAS, MPH, Dan Tzizik, DrPH, MHS, Aliza Stern, MMSc,

GMS, Physician Assistant Program

Introduction/Background: Metrics used in physician assistant (PA) program admissions, such as GPA, GRE, personal statements, and healthcare experience, are insufficient at identifying students that will be most successful. Hence, there is a focus on objectively measuring non-cognitive factors of applicants. One such metric, the computer-based assessment for sampling personal characteristics (CASPer), is already used by multiple medical, dental, and other health professions programs in their admissions process and research by our program has found that CASPer successfully measures non-cognitive attributes valued in admissions. However, there is no published evidence of CASPer scores being predictive of success in PA school.

Purpose/Objectives: This study addressed whether CASPer score was predictive of performance during the Boston University PA program.

Methods: This study determined the strength of CASPer in predicting PA program outcomes. For two cycles, applicants were required to take the CASPer; however, the score reported as a percentile was not directly used in their evaluation. Pearson correlation and multivariable linear regression were used to determine the association between CASPer score and the following metrics of program performance: didactic year scores; a standardized comprehensive exam given as a formative assessment of the didactic year (PACKRAT I); and standardized exams given at the end of clinical rotations.

Findings/Results: CASPer had a measurable impact on multiple metrics of PA program success, impacts that were independent of measures of cognitive ability. For the class of 2024, CASPer was not predictive of scores in traditional didactic courses or the PACKRAT I, however, it was predictive of success in some aspects of clinical year. After adjusting for didactic year performance, an increase in CASPer score by 10 percentile points was associated with a 2.4-point increase on end of rotation exams, accounting for an additional 19% of variation. This is equivalent to an expected difference of 15.1 points across the cohort, a nearly 1 standard deviation increase. The effect of CASPer score was most striking at the start of the clinical year and were most strongly predictive of the Clinical Therapeutics and Scientific Concepts end of rotation exam sub-scores.

The class of 2026 joined the new medical school didactic curriculum, Principles Integrating Science, Clinical Medicine and Equity (PISCES). Given the similarity of the pedagogy of PISCES to the style of learning during the clinical year, we posited that CASPer would predict success better than with DRx. Preliminary evidence shows a positive, but not significant, relationship between both science GPA and CASPer in PISCES grades so far; students from the class of 2026 who score higher on the CASPer exam may have better performance in PISCES.

Conclusions/Discussion: CASPer has been shown to be predictive of personal and professional outcomes in medical licensure but this study provides the first evidence that it predicts success during PA school. The strongest relationship appears to be on PAEA end of rotation exams and coursework using team-based learning. These effects are independent of cognitive metrics of applicant readiness. This suggests that traits assessed by the CASPer, such as motivation, collaboration, problem solving, and resilience, are important to PA school performance, especially for learning independently. While the reported results are strong, the relationships described may not be generalizable to all programs or types of health professional training. Thus, future research should expand analysis across schools and programs.

CASPer as a Potential Screening Tool in PA Program Admissions

John R. Weinstein, PhD, MS, Aliza Stern, MMSc

GMS, Physician Assistant Program

Introduction/Background: Metrics used in physician assistant (PA) program admissions, such as GPA, GRE, personal statements, and healthcare experience, are insufficient at identifying students that will be most successful. Further they can be biased and/or serve as a barrier for underrepresented groups. Hence, there is a focus on objectively measuring non-cognitive factors of applicants. One potential method, the computer-based assessment for sampling personal characteristics (CASPer), has performed well and is administered to applicants to a wide variety of medical and other health professional programs. However, despite the use by multiple PA programs, there is no published evidence of its validity or risk of bias in PA school admissions.

Purpose/Objectives: This study sought to assess whether applicant CASPer scores were predictive of receiving an invitation to interview or matriculating to a single PA program. In addition, it determined whether there were any differences in scores between racial and socioeconomic groups and whether the inclusion of the exam served as a barrier to applying.

Methods: For two cycles, applicants were required to take the CASPer; however, the score, reported as a percentile, was not directly used in their evaluation. Differences in CASPer score between those interviewed/accepted and those who were not were compared using the Student's t-test. Associations between admissions metrics were assessed with the Pearson correlation coefficient. Predictive performance, eg sensitivity and specificity, of the CASPer for admissions outcomes was also determined. The proportion of applicants with different self-identified race and socioeconomic characteristics were compared across years and above/below CASPer threshold.

Findings/Results: Overall, mean CASPer percentile increased significantly across the admissions process from 61 among those not invited to interview to 73 among those interviewed to 76.0 among those accepted into the program. Performance on the CASPer had a strong positive relationship with the probability of interview or acceptance and was not correlated to GPA or GRE. Setting a 50th percentile cutoff for admissions had a high expected sensitivity but poor specificity. As such, it had good negative predictive values; those below cutoff were likely to be rejected before (79.8%) or after interview (96.6%). Screening applicants using the CASPer would likely not have any detrimental effects on diversity; those scoring above and below cutoff had similar racial and socioeconomic backgrounds.

Conclusions/Discussion: Results suggest a minimum CASPer score can be used to efficiently screen-in applicants, as those with low scores are extremely unlikely to be accepted. Additionally, there was a low concordance with metrics of academic success, such as GPA and GRE, indicating that it successfully measures non-cognitive attributes. Since CASPer was not used in the review of applicants, this study ensured that the CASPer scores were in line with qualities valued in our admissions process. While the results of this study strongly advocate the use of CASPer in PA program admissions, the findings may not be generalizable across all programs or types of health professional training. However, the process described here could be used by other programs to determine how to adapt CASPer data into their admissions workflow.

Decreasing Risk and Stigma Among Patients Who Use Drugs: Creating an ED-Based Harm Reduction Curriculum

Karrin Weisenthal, MD¹, Alexa Van Besien, MD¹, Samantha Johnson², Joseph Shay², Zoe Weinstein, MD³, Jessica Taylor, MD³, Laura Welsh, MD¹

Chobanian & Avedisian SOM, Emergency Medicine¹, BMC: Public Health Services², Chobanian & Avedisian SOM, Medicine³

Previously Presented at the Council of Residency Directors Emergency Medicine on 3/26/2024

Introduction: People who use drugs (PWUD) represent 10% of ED visits nationally, and many delay seeking care due to discrimination in medical settings. Evidence-based medications for opioid use disorder are not equitably or universally available, and not all PWUD want to stop their drug use. Harm reduction is part of the U.S. Health and Human Services Overdose prevention strategy. Yet, beyond naloxone distribution, few EM residents receive any training, and no curricula exist in the literature.

Educational Objectives: To improve EM residents' ability to incorporate harm reduction principles into the care of PWUD, including counseling on ways to decrease the risk of fatal overdose, techniques to lower infection risk, and indications for PEP/PrEP.

Curricular Design: We created a 2.5-hour workshop delivered to EM residents during their weekly didactic. The workshop consisted of 2, 30-minute lectures, each followed by case-based learning to allow for active learning and application of content provided in the lecture. Small groups worked through a total of 2 cases under the guidance of EM faculty members who were equipped with a facilitator guide. We included a demonstration by a peer counselor on proper injection techniques to provide context for harm reduction advice. All content was informed by a literature review and was designed by EM and Addiction Medicine physicians and addiction peer counselors. The curriculum was first piloted on EM faculty members and altered based on feedback.

Impact: The curriculum was evaluated using a post-workshop survey with a 100% response rate. All participants (23/23) reported increased confidence in their ability to employ harm-reduction strategies addressed in the curriculum (Table 1). All participants rated the workshop as highly effective. To our knowledge, this is the first curriculum to address risk reduction for PWUD not interested in stopping drug use and can be adapted for many settings based on local regulations.

A PATH to Wellness: Incorporating Wellness into an Advising Curriculum

Tiffany S. Wong, MA, Megan Young, MD, Daniel Chen, MD, MSc, Karen Symes, PhD, Paige Curran, MA, Angela Jackson, MD

Chobanian & Avedisian SOM, Student Affairs Office

Previously Presented at the AAMC GSA-CiM-OSR National Meeting on 4/18/2024

Introduction / Background/Purpose: At the Chobanian & Avedisian SoM we have a robust longitudinal advising curriculum where 40 active faculty members serve as advisors and teach doctoring to medical students. Regular faculty development is focused on advising with increasing emphasis on wellness starting in 2022. The core principals of this program follow the mnemonic PATH: Professional Identity Formation; Advancing to Residency through Mentoring and Advising; Techniques for Lifelong Learning, Resiliency and Wellness; Humanism and Advocacy. The first cohort of students to complete all four years of this curriculum graduated in 2023.

Purpose / Objectives: Our objectives in integrating wellness into the advising program are to: (1) Promote effective behaviors that help students navigate through the inherent stresses of medical school, (2) Increase awareness among students and advisors on how to access support and resources when personal and academic challenges arise, and (3) Support students in setting personalized wellness goals and helping them develop action plans to achieve their goals.

Methods: A Programmatic Wellness Calendar was developed focused on a monthly theme, based on a letter of PATH and a dimension from the wellness wheel (physical, emotional, community, intellectual, financial, values). Each month includes 5-components that weave together a student story, student affairs-sponsored and student-led wellness events, career exploration, and a tip sheet. In addition, My Wellbeing Plan was developed as an initiative with a 15-minute confidential, voluntary Wellness Check-in for students to (1) set a goal on one dimension of their wellbeing (2) create an evidence-based action plan and (3) find a resource relating to their goal. This action plan is modeled after the Health Action Process Approach and Implementation Intention theory which has been effective in promoting health behaviors like physical activity, smoking cessation, and healthy eating (Schwarzer, 2008 doi: 10.1111/j.1464-0597.2007.00325.x). Wellness amongst the students is further promoted through Academic Enhancement sessions, and increased personal time, three days per semester for those in clinical rotations as well as half days coinciding with class meetings.

Findings / Results: The individualized wellness check-ins were assessed by short, anonymous survey. Students from M1 to M4 participated: M1: 41%; M2: 37%; M3: 14%, M4: 8% of check-ins. Of the students who chose to do the wellness check-in, 19% opted for a follow up appointment. Overall, students identified least satisfaction with their physical wellbeing and most with their values. They were “almost always” and “often” able to complete their identified wellbeing plan goal (67%) and did not find it challenging to complete the plan (78%). The participating students reported that the wellbeing check in “helped me with stress management, improving a balanced lifestyle, and my overall wellbeing” (100% Strongly agree and agree), and the “check-in helped me identify and learn how to nurture healthy behaviors” (100% Strongly agree and agree).

Conclusions / Discussion: Preliminary data suggest that students who took advantage of the check-ins established and persisted with their identified wellbeing goals. A more comprehensive assessment of the program is required but initial results are encouraging.

Advocacy in Genetic Counseling Education: Integrating Blogging and Presentation to Promote Professional Engagement

Kimberly M. Zayhowski, MS, CGC

GMS, Genetic Counseling Program, and Chobanian & Avedisian SOM, Obstetrics and Gynecology

Introduction: In the first-year genetic counseling graduate course titled "Professional Issues in Genetic Counseling," students embarked on an integrated project aimed at emphasizing the vital role of advocacy within the profession. This multifaceted endeavor included both a blog post and presentation component, with a central focus on addressing diversity, equity, inclusion, and justice issues. The importance of advocacy in genetic counseling is underscored by the need for professionals to navigate complex societal and healthcare challenges with skill and sensitivity.

Purpose: The purpose of this project was to provide students with an opportunity to critically examine the genetic counseling field and cultivate essential skills for professional practice. Through reflective analysis and engagement with key concepts from the course relating to anti-oppression, students aimed to develop a nuanced understanding of equity in healthcare and the role of advocacy in promoting positive change within the profession.

Methods: Throughout the assignment, students were encouraged to embrace reflective practices, drawing on insights from their semester-long learning journey to critically analyze key concepts related to diversity, equity, inclusion, and justice. This process involved synthesizing knowledge gained in the classroom with real-world experiences and perspectives. Students then translated their reflections into a blog post advocating for change, with careful consideration given to aligning the content with the intended audience of a chosen target blog. Additionally, students delivered short presentations aimed at effectively conveying their reflections and advocacy efforts.

Results: Of particular note is the proactive engagement of 7 out of 14 students who elected to submit their blogs for consideration on an external national blog forum for genetic counselors following the completion of the assignment, subsequently receiving approval. This indicates a high level of commitment to professional discourse and a desire to share their ideas with the broader genetic counseling community. Collaboration with faculty from Boston University's genetic counseling program and media team provided students with valuable insights into academic publication processes and professional dissemination strategies.

Conclusions: Engaging in this assignment empowered students to actively contribute to ongoing discussions within the genetic counseling profession while honing their advocacy, critical thinking, and communication skills. By encouraging students to critically evaluate the genetic counseling field and advocate for positive transformations, this project not only aligns closely with the overarching student learning outcomes of their graduate education but also underscores the universal importance of advocacy across various medical professions. The skills cultivated through this assignment can be readily applied to other medical disciplines, enabling students to navigate the complexities of their respective professions with adeptness and compassion, while advocating for meaningful change.

Exploring the Student-to-Faculty Pipeline: How Institutional Academic Dental Careers Fellowship Program (ADCFP) Liaisons Assess Fellows' Success

Ashley Zhang, BA, Matthew Mara, DMD, EdD

Goldman School of Dental Medicine, General Dentistry

Introduction: A chronic challenge that dental schools face is faculty shortages. One way the American Dental Education Association (ADEA) attempts to address this concern is through the Academic Dental Careers Fellowship Program (ADCFP). While it is a national program, it is tailored and managed by an appointed faculty liaison at each dental school. The program provides a flexible framework where student fellows pair up with a faculty mentor to engage in a research project, complete teaching experiences, and conduct a series of faculty interviews. While the current ADCFP framework has existed since ADEA's national expansion of the program in 2015, how institutional faculty liaisons define successful completion of the fellowship, including securing a faculty position, remains unknown.

Objective: The study's objective is to uncover ADCFP faculty liaisons' definition of success in the program, with the goals of strengthening the dental student-to-faculty pipeline and preparing the next generation of academic dentists.

Methods: A convenience sample of 2023-24 ADCFP liaisons at dental schools provided on the ADEA webpage was emailed. The initial outreach email included an exempt research information sheet and a REDCap survey to participate in a 60-minute Zoom interview (n=8). An interview guide was crafted through the lens of Bandura's Social Cognitive Theory to uncover cognitive, behavioral, and environmental factors that describe fellow success. The interview guide was reviewed by ADEA staff who manage the ADCFP program nationally and pilot tested with the ADCFP liaison at the researchers' institution who was excluded from participation in the study. All interviews were audio and video recorded, transcribed and de-identified with pseudonyms, and put into NVivo for analysis of major reoccurring themes. The project was approved by the Boston Medical Center IRB (H-44045).

Results: Four major themes emerged from the data: 1) success is not limited to fellows immediately seeking a faculty position; 2) the program builds transferable skills that would be useful in any type of future practice; 3) the program establishes a collaborative mindset; and 4) factors outside of students' interest and desire may prevent them from seeking faculty positions. Important cognitive skills noted in successful ADCFP fellows included strong written and verbal communication skills, the ability to conduct and meaningfully analyze research, and present data. Behavioral factors associated with the success of ADCFP fellows included the ability to collaborate with colleagues, most notably through the completion of faculty interviews. Environmental factors of success noted included establishing a harmonious mentor-mentee relationship. Additionally, limitations such as loan repayments, and the geographic location of dental schools were noted as reasons why fellows may not immediately pursue a career in academia.

Conclusion: ADEA's ADCFP is a faculty pipeline program designed to encourage fellows to seek academic careers. While intended outcomes include directing interested fellows towards a career in academic dentistry, institutional ADCFP liaisons define success through establishing transferable skills, a collaborative mindset, and a strong mentor-mentee relationship. Future research may focus on identifying facilitators and barriers of ADCFP fellows seeking academic careers as perceived limitations noted by ADCFP liaisons include the burden of student debt which may prevent fellows from seeking academic positions after graduation.